AN ADVANCED EXPOSITION
OF ISLAMIC ECONOMICS AND FINANCE

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and
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DEDICATION

This book is dedicated to all those who presently are and will come to be in the future on the path of the paradigm of Oneness of Allah for understanding the dynamics of world-systems that are induced and driven by the divine episteme of unity of knowledge.

PROLOGUE

Those who (in charity)
Spend of their goods
By night and by day,
In secret and in public,
Have their reward
With their Lord:
On them shall be no fear,
Nor shall they grieve.

Those who devour usury
Will not stand except
As stands one whom
The Evil One by his touch
Hath driven to madness.
That is because they say:
"Trade is like usury",
But Allah hath permitted trade
And forbidden usury.
Those who after receiving
Directions from their Lord,
Desist, shall be pardoned
For the past; their case
Is for Allah (to judge);
But those who repeat
(The offence) are Companions
Of the Fire: they
Will abide therein (for ever).

Allah will deprive
Usury of all blessing,
But wll give increase
For deeds of charity:
For He loves not
Creatures ungrateful
And wicked

(Qur'an, 2: 274-276, trans. Yusuf Ali, see Reference section)

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PREFACE

Professor Masudul Alam Choudhury is one of the most prolific writers in the field of Islamic economics whose pioneering work has made a substantial contribution to the development of the discipline. In writing this advanced exposition he has teamed up with Mohammad Ziaul Hoque, a fellow researcher at Sultan Qaboos University in Muscat. Together they have produced this interesting collection of essays that throw new light on some of the issues that those working in the field of Islamic economics have grappled with in recent years.

The approach is centred on the Islamic concept of Tawhid, the unity of divine knowledge and the oneness of Allah, and it is this that brings the diverse elements together and provides a common thread. In particular by applying the principles of Shura or consultation to intellectual debate, the authors develop an interactive, integrative and evolutionary process to tackle each of the issues addressed. Although not always easy to follow, the interested reader who adopts this methodology will be rewarded with pertinent insights.

Most Muslim economies can of course be classified as developing, and in this context it is perhaps appropriate that in the first substantive chapter of the book the authors provide an Islamic critique of conventional approaches to development. The stress is on community based development and group rather than individual empowerment, with a particular focus on the elimination of poverty as a development objective. Population growth is viewed positively rather than negatively, with population change classified as an endogenous phenomenon rather than being treated exogenously. The authors believe that the demographic transition to aging societies that has occurred in Europe, Japan and China will not happen in Muslim countries that will continue to enjoy high birth rates because of political and moral imperatives.

The essay on corporate governance is interesting, as it is only during the last decade that Islamic economists have turned their attention to these issues. Striking the optimal balance between the different stakeholders in conventional business enterprises is difficult, as there will always be conflicts of interest between the management, the shareholders as owners and the workers. Choudhury and Hoque propose a very different business model for Islamic societies based on the principles of Shura or consultation where all stakeholders share the same goal of Tawhid or divine unity. Given this objective issues such as financial reporting and transparency are not imposed on an unwilling management, but rather insider knowledge is willingly shared and the concepts of private and public domains become fused.

As might be expected in any book on Islamic economics and finance, the treatment of the latter accounts for much of the writing. Paper money is seen as destabilising, and a case is argued for asset-backed money, notably an Islamic Dinar backed by gold. Although Choudhury and Hoque admit that the

price of gold has not always been stable in the short run, they assert that it has been a good store of value in the longer term. The return to a gold standard system should facilitate monetary integration and trade between Muslim countries if they adhere to such a standard. The authors support the concept of a one hundred percent reserve requirement being imposed on commercial banks in the interests of financial stability, and discuss this in the context of the Islamic prohibition of Riba or interest. There is also an interesting technical treatment of Takaful, Islamic insurance.

The title indicates that this work is an advanced exposition, and the interested reader will need to persevere to extract the implications of the arguments. Nevertheless the struggle will be worthwhile, as the work contains many interesting insights. Too often the ideas of authors that are ahead of their time are dismissed as unrealistic, but reality itself changes. Ultimately economic behaviour is determined by beliefs and aspirations. Those who share the goal of Tawhid can in the long run benefit from a financial and monetary system that is more just and less confrontational than that prevailing in the present imperfect world where man too often puts his own interests above those of the Creator.

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The tenor of this book as an advanced exposition of the field of Islamic economics and finance is a critique of the field of mainstream Islamic economics and finance. It also comprises a foundational development of the themes covered in this book. Such an approach is advanced in the sense of it being epistemological in nature in reference to Qur'anic knowledge and the use of the guidance of the Prophet Muhammad (Sunnah) on various issues. Both the Qur'an and the Sunnah form the fundamental epistemology of unity of knowledge. While Professor Choudhury has developed this theme extensively in many of his published works. The same theme is invoked in this book to establish the epistemological approach to the study of economic and financial issues and problems. The focus is on the interrelationships between money, real economy and socio-economic development.

This kind of an epistemological methodology in the study of problems and issues of economics and finance is quite different from the usual approach taken by those who profess to work in this field in reference to mainstream economic and financial doctrines. We claim that in such an existing methodology no fresh demand is made on what truly must be 'Islamic'. The essentially different methodological worldview of the Qur'an and the Sunnah governs diverse issues of the socio-scientific order. We therefore reluctantly use the terminology of 'Islamic economics and finance', noting that what we develop and apply in our advanced exposition is a unique methodology of unity of knowledge that can be applied to a wide range of problems and issues spanning the entire socio-scientific spectra. Only specifically the same methodology of unity of knowledge is applied in the present case to study selected themes of economics and finance in the light of the Qur'anic methodology and further supported by the Sunnah of the Prophet Muhammad on such issues.

FIGURES

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CHAPTER 1

INTRODUCTION:
THE EPISTEMOLOGICAL REFERENCE

Throughout the chapters presented here there is a unique reference of all the issues and problems studied to the epistemological premise of unity of divine knowledge. In the Qur'an this unity of divine knowledge is termed as Tawhid, the oneness of Allah. The conception and application of all Islamic issues must emanate in reference to this unique premise. Thus all such issues, conceptions and applications become knowledge-centered in reference to Tawhid. There is a methodology for the derivation of the conception and rules emanating from the Tawhidi premise. Such a methodology goes through the understanding of the pervasively unified systems view of creation presented in the Qur'an and is referred to as the 'pairing' of all entities in the universe for understanding by the contemplative observer on the Signs of Allah (Ayath Allah).

From this premise we derive the most powerful and distinct principle of the Qur'anic understanding of phenomenology in reference to systemic unity of the component entities of systems. This is the principle of complementarities, arrived at by interaction among the unifying domain of diverse possibilities. These possibilities are combined together in pervasively complementary relations, from which the interacting entities learn in continuum. After integrating such relationally complementary and interacting entities, the entities subsequently evolve into newer phases of learning by fresh origination of knowledge-flows emanating from the episteme of divine oneness of knowledge.

Now what is true of knowledge is equally true of falsehood or 'de-knowledge' signifying a world-system that remains permanently and compositely competing by methodological individualism as opposed to cooperation and

sharing. The latter is the negative scale of knowledge denoting negation of Tawhid and hence is non-Islam.

The continuously evolutionary and recursively learning processes follow a particular method of deriving knowledge through the medium of interaction, which then leads to integration (relational complementarities), and thereby evolve into newer knowledge-flows (likewise 'de-knowledge' or falsehood). The institutional form of such interaction followed by integration and thereafter by creative evolution of knowledge-flows and their attenuating cognitive and relational entities is referred to in this work as the embryonic *Shura* (consultation as embryonic participation between entities) continuously interacting with Tasbih (conscious worship by world-systems in reference to the divine laws).

In the Qur'an the term Shura (more correctly Tasbih-Shura) means consultation but broadly also participation. It is not limited to political institutionalism alone. Rather, the deeper meaning of the Shura as a process of learning combines the intrinsic causal relationship between the human mind and the abstraction of all world-systems. The process linked with learning in and through the participatory process is thus referred to in this work as the Shuratic Process (discursive process) or equivalently the Interactive, Integrative and Evolutionary Process (IIE-Process). This process is explained below. The IIE or Shuratic Process is studied in depth in respect to the economic, financial and social issues treated in different chapters of this book.

The purpose of this introductory section to the following chapters is to keep the reader perpetually focused on the Tawhidi epistemology as the unique methodology that is constantly invoked throughout this book. Its explanation is introduced presently in a descriptive way. Without this permanent reference to the Tawhidi epistemological roots there can be no Islamic context of learning and understanding of world-system. In this same learning experience we find that the

Islamic worldview according to which all problems of economy, finance and society are understood and organized are contrary to the methods and methodology of mainstream thinking. Of particular emphasis here is the contrary views between Islam and neoclassicism in scientific thinking and its application. Neoclassicism stands on competition and marginalism. Islam stands upon unity of divine knowledge. Thus distinct epistemological origins are understood and applied to the construction, analysis and delineation of world-systems and their composite issues and problems.

Characterizing the Shuratic Process (Discursive Process) or the IIE-Process

In the Shuratic or IIE-process knowledge-flows are formed by,

(1) The Will and Command of Allah,

(2) The guidance or the Sunnah of the Prophet Muhammad,

(3) The guidance of the learned ones in accordance with (1) and (2)

(4) Enlightened discourses within and across communities (thus systems)

(5) Derivation of concepts followed by the development of ways and means that is instruments, policies and programs to fuse the precept of unity of knowledge into the understanding, analysis and construction of economic, financial and social issues and problems of world-systems.

(6) Continued evolution of the experience of unity of knowledge through the relational sequences of (1)-(5) with respect to relational world-systems that are unified by the principle of complementarities between the composite systemic entities. Pervasive complementarities also convey the idea of pairing across diversity of entities, issues and problems of world-systems.

(7) The closure of (1)-(6) with the ultimate accumulation of knowledge is in the Event of the Hereafter (Akhira). This indispensable event closes the pervasively and continuously learning universe premised on unity

of knowledge in its very large scale. The passage to such a completion takes place through the relational dynamics of microscopic world-systems that experience the dynamics of the IIE-processes while cumulatively progressing through the evolutionary world-systems.

The uniqueness of the IIE or Shuratic Process methodology in all issues and problems of world-systems is recognized by the pervasive complementarities of relations between knowledge-induced entities, all of which refer uniquely to the same methodology of unity of knowledge despite the diversity of problems, issues and the nature of composite sub-systems of the systems under study. While the complementary interrelations remain embedded in the general system, yet they are unraveled by conscious invocation of the human mind. Such an intellection of unity of knowledge with respect to the Tawhidi epistemology and its organization in the world-system forms the extensively relational Qur'anic worldview.

No scientific thought has appeared and developed without epistemological reference at the core. While we reject neoclassicism and much of received economic theory and its application to real world problems by the Islamic methodology, we recognize that neoclassicism and economic theory has its own epistemological roots. That contrary epistemology is premised on rationalism and economic rationality. This is reflected in the postulate of methodological individualism of competing opposites. The preferences describing behavior in the individual, household, producer, institution etc. are similarly aggregated from this kind of a competing and conflicting worldview.

In order to contrast this viewpoint of methodological individualism by the Islamic methodology we invoke the relevant methodology of the Qur'anic worldview. That is referred to as the Tawhidi epistemology. It will be used substantively throughout all the chapters in reference to this Introductory Chapter.

The goal of Islamic banking and financial institutions is to embed themselves as sub-systems that can carry social, economic and financial transformation in the light of the critical foundation of the Tawhidi epistemology. The transformation is then aimed at the total change and reconstruction of the Muslim World into what is called the Ummah, the world nation of Islam.

The Islamic institutions in general are therefore, responsible entities charged by the Islamic consciousness to undertake the greater overarching goal of Ummatic transformation while attending to the interest of shareholders in terms of the protection of their wealth, the sustenance of the progeny, the duty of social and financial security and playing dynamic role in human resource development in the light of the Tawhidi worldview at all levels, but more importantly at the grassroots. This kind of an epistemological approach extends the relevance of the Islamic Law (the Shari'ah) to economic and financial activities. Without attending to this broad purview of the relational concept of a community and Ummatic transformation, the relevance of Islamic institutions in the social economy cannot be established.

The conception of knowledge according to the Qur'an being uniquely embedded in divine oneness, it is distinct from a cursory reference to rational and instrumental conception of knowledge. The latter category neither precedes nor is it independent of the divine epistemology of Tawhid. Thus we uphold the claim that there is no 'knowledge' other than the Tawhidi inspired knowledge of unity of life, thought and action. The discursive process of knowledge formation as in the Shuratic Process or the IIE-process both commences from the Qur'an and is ratified by the Qur'an. We refer to this kind of reasoning as the methodology of self-referencing. It is altogether different from the refutation hypothesis of the philosophy of science in Western thought.

CHAPTER 2

THE PARADIGM OF SOCIO-ECONOMIC DEVELOPMENT

The meaning of development in the economic literature has always been explained in terms of certain critical macroeconomic indicators linked with the generation of economic growth, efficient allocation of resources and distribution of income and wealth. Within these broad categories are taken up principal issues such as, population dynamics, employment, entitlement, empowerment, poverty alleviation, human development, sustainability and the environment (Meier, 1995; Sen, 1986; World Bank, 2000). More recently, such themes have also been extended to gender issues, corruption and the political economy of self-reliance of nation states confronted by the forces of globalization (Mehmet, 1990), militarization (Choudhury, 2001) and technological backwardness as well as dominance.

In the above approaches to the study of socio-economic development the methodology used is a segmented study and analysis of such broad development problems with the methods of economic and social analysis. Left out in such a study are the interlinked perspectives of various issues and problems within a general equilibrium framework and then to find out how causality is established in their circular feedback linkages. When we incorporate this holistic perspective and treat the moral, ethical and social issues in a comprehensive way, the meaning of socio-economic development as a study in the general ethico-economic methodology changes. We then define development in three particular ways.

Two Definitions of Socio-Economic Development

Firstly, the South Commission (1990) defined socio-economic development as follows:

Development is a process of self-reliant growth, achieved through the participation of the people acting in their own interests as they see them, and under their own control. Its first objective must be to end poverty, provide productive employment, and satisfy the basic needs of all the people, any surplus being fairly shared ... In addition, development presupposes a democratic structure of government, together with its supporting individual freedoms of speech, organization, and publication, as well as a system of justice which protects all the people from actions inconsistent with just laws that are known and publicly accepted.

The social and philosophical meaning of development is implied from Anthony Giddens' (1983) concept of social 'presencing'. Giddens writes (p. 8),

In social theory time-space can be understood as 'presencing', the continual intermingling of presence and absence that constitutes social conduct.

This is an important perspective in understanding how modernity as an aspect of development comes about as an unending chain of causation between attained states and their onward evolution. Giddens' idea of modernity now used to explain development as an evolutionary process was also projected in Foucault's (see Dreyfus & Rabinow, 1983) writings on post-modernity as a futuristic perspective of development. Foucault wanted to explain how post-modernity is a deconstruction of acquired states of modernity by the emergence of non-foundationalism and a plethora of non-conventional questioning of the modern mind and its scientific doctrines. Foucault referred to this totality of human understanding and the roots of knowledge as the *episteme*. We are now invoking such epistemic implications of the theory of political economy of development in a similarly evolutionary context.

Ethico-Economic Concepts of the Development Paradigm

Other writers have contributed profoundly to the literature on the ethico-economic foundations of development studies. Notable among these are the works of Schumacher (1974) and Goulet (1971, 1995). Choudhury (1993) presents these ideas and detailed discussions on various development paradigms.

E.F. Schumacher's Development Paradigm

Schumacher's treatment of ethics in development emphasizes the following ethico-economic perspectives: First, there is need to reorient society's knowledge in the direction of proper choices of goods to produce and consume and on the appropriate technology choices to employ in the selection of proper bundles of goods and services. Secondly, the internal management structure and decision-making aspects of enterprises must change from large and concentrated ownership to decentralized, democratic and freedom-prone organizations participated in co-operative contracts between owners, workers and shareholders as stakeholders. In all of these goals stability, long-term survival of enterprise and employment are key points. Yet with profit sharing in such joint and participatory ventures wages would not be high but real wages are expected to remain stable in tandem with stable prices of goods and services of the appropriate types, socially speaking.

On the theme of appropriate choice of technology, Schumacher places great emphasis on the use of primary resources for the production of manufactured goods. In his ecological perspective there is a keen interest on the conservation of primary goods. Primary goods become the source of all productions and are in turn conserved by the cyclical flow of resources from secondary productions. Schumacher who was concerned with the question of the production problem did not consider this kind of cyclical linkage that reproduces itself between the primary sector and the secondary sector. Behind this circular

causation between the two sectors and the productive factors together with the technology involved there are the social factors and human preferences. Such a totality of interaction takes place if and only if there is a worldview to guide and instruments to implement the interconnected networking in the framework of systemic unity of knowledge.

Denis Goulet's Development Paradigm

Denis Goulet had contributed significantly to the recent literature on development ethics. Goulet defines development as the maximizing of life-fulfilling activities. Such activities are seen to bring about both material and social wellbeing. One can take within the social wellbeing criterion a gamut of possibilities for material and social wellbeing. All these are implied by the South Commission's definition of development.

Goulet's concept of development thereby includes the following targets:

1. Co-operative institutions are established between the dominant and small-scale producers and enterprises. Thus the power structure of governance becomes shared and equitable.
2. Co-operative institutions lead to collective and shared decisions between participants.
3. Freedom of choices by the participants is encouraged.
4. Environmental consciousness and the survival of the progeny are important ethical issues in the development process.
5. Human resource development is important in enabling participants to deliberate on their perspective of human wellbeing in the intertemporal sense.

The Islamic Worldview of Socio-Economic Development

With the foregoing comparative picture on some of the ethical perspectives on socio-economic development and the delineation of the critical issues tackled in development studies we can now turn to the Islamic worldview in this field. How are the Islamic conception, application and measurement of socio-economic development parameters similar and different from those in mainstream thinking and those given by the school of development ethics? We now turn to investigate these questions in some details.

In reference to Chapter 1, the Tawhidi epistemological methodology organizes the goal of unification of knowledge among the entities of systems. The degree of effectiveness of systemic relational complementarities between various recommended entities in the light of the Islamic Law (Shari'ah) is evaluated by means of the social wellbeing function. Hence the social wellbeing criterion measures the level of systemic unity of knowledge attained in the discursive learning experience of the Shuratic Process or the IIE-process (Interactive [= interaction over diversity], Integrative [= complementarities and consensus] and Evolutionary [= creative and dynamic re-origination of knowledge-induced world-systems] as referred to in Chapter 1) in reference to a methodological understanding of the Tawhidi worldview, either quantitatively or in the Shuratic discursive sense.

Remember always that Tawhid is the worldview. IIE or the Shuratic Process is equivalent methodology emanating from the worldview of Tawhid. The world-system is the complementary order whose epistemology is premised on Tawhid and explained by the methodology of the IIE-process or equivalently the Shuratic Process. Connected with the IIE-process are the IIE model, IIE relations etc.

Any worldview must have an abiding praxis, which forms the epistemology of that system of thought, applications and analytical measurements. In mainstream development theory the neoclassical economic paradigm centering on growth as the pivot of all subsequent human betterment has been thoroughly pursued. Such growth perspectives may acquire particular forms, such as the World Bank's recent approach to poverty-centered growth. But as long as the neoclassical economic theory is used to explain any of these there remains the permanent structural feature of its postulate of marginal substitution explaining trade-off between competing alternatives. In these trade-offs are embedded the conflicting interests followed by methodological individualism and independence between goal maximizing opposites: the rich and poor, the industrialized and developing countries, economic efficiency and distributive equity, large and small producers, gender opposition, population growth and poverty, ecological conservation and de-industrialization, capital and labor and so on.

In the Islamic worldview a precise praxis of its own must explain uniquely the entire gamut of the socio-scientific universe with all its details of thought, conception, application and measurement. Such praxis would then form the epistemology of the Islamic worldview.

We must derive the praxis from the foundation of Islamic knowledge. These are the Qur'an and the Sunnah. Thereafter, the discourse medium to derive rules of life from the foundational knowledge sources is applied. This last process is called Ijtihad and the discursive medium through which such rules are derived and mooted in the light of the Qur'an and the Sunnah vis-à-vis the realities of the world-systems, is called the Shura (Qur'an, Chapter 42). We will call the process through which the discursive medium becomes a dynamic part and parcel of Islamic knowledge formation for the study of world-systems in the light of the Qur'an and the Sunnah, as the Shuratic Process.

A process methodology and model derived from the nature of the Shuratic Process will now be first explained in reference to the Islamic epistemological and ontological roots. The term Shuratic Process is derived from the Qur'an in terms of the worldview described by the interactive, integrative and evolutionary (IIE) as formalized below in continuation with the descriptive explanation of the same process in Chapter 1. Secondly, we will apply the formal version of the Shuratic Process or the IIE-process methodology to the theme of socio-economic development.

A Conceptual Formalism of the Knowledge Model of Unity of Knowledge (Tawhid): the IIE Process or Shuratic Process

At the outset the focus of attention is on deriving and formalizing a process model of generalized system as explained below:

$$\Omega \to_F \{\Phi\} \to_F \{\Phi^*\} \to_{fi} \{\theta\} \to_G \{X(\{\theta\})\} \to_{\downarrow \to \Theta} \text{New } \{\theta\} \to \text{continuity} \to \Omega = H \quad (2.1)$$
$$W(\theta, X(\theta)) \quad \text{in repeated processes}$$

Primal→	Derivation→	Processof→	Post-evaluation→	Evolution→	....Continuity→	Closure
stock of	of primal	deriving		of similar		in the
knowledge	knowledge	knowledge		processes		very
- flows	-flows by					large-
	discursion					scale universe

The following symbols are defined in the string relation (2.1):

Ω denotes the Tawhidi epistemology. That is, Ω explains the fundamental Qur'anic axiom of divine oneness. It can thus be simply understood as the dimensionless but creative and governing origin of all knowledge. Hence we intend to treat Ω as a mathematical topology. Therefore Ω denotes the completeness and absoluteness of divine knowledge and is thus the Stock of knowledge of the divine law in the Qur'an, where it is referred to as Lauh Mahfuz.

Ω is treated in our work simply as a topological reality, which cannot be nor needs to be configured and quantified. Its function is of the overarching law.

Φ denotes the ontology derived from Ω in the form of the divine law (Sunnat Allah). Φ is thus the knowledge domain of the revealed Qur'an as manifested in the order of the world-systems. It is observed and explained by the completeness and absoluteness of Ω.

F denotes the spontaneous and pervasive unveiling of divine oneness in the cosmic scale through the divine law.

Φ^* denotes the further ontological comprehension of the divine law in Φ as realized through the Sunnah (guidance) of the Prophet Muhammad. This medium of presenting the divine law in living experience is denoted by the mapping f^*.

$\{\theta\}$ denotes a sequence of knowledge-flows derived from the epistemology of unity by the exercise of Shuratic discourse at the level of deriving the Usul as-Shari'ah (foundation of the Shari'ah) as the core of the divine law.

H denotes the Event of the Hereafter and completes the cycle from Tawhid to Tawhid through the process of the knowledge-induced world-system. Thus H = Ω.

The medium of the Shuratic discourse is denoted by the symbol, fl, in respect to stage 1 of the Shuratic Process.

The primordial origin of knowledge is Ω. The process from Ω to $\{\theta\}$ through the mediums as mentioned above, represent the stages of ontology, that is, the stages of unraveling of the Qur'anic episteme through laws, guidance and rules.

The process from Ω to $\{\theta\}$ in the epistemological and ontological meaning of the Qur'anic theory of knowledge is brought out in the Qur'an (4:69):

> All who obey Allah and the Apostle are in the company of those on whom is the Grace of Allah, -- of the Prophets (who teach), the sincere (lovers of Truth), the Witnesses (who testify), and the righteous (who do good): Ah! What a beautiful Fellowship!

The above verse establishes the confirmation and certainty of the Tawhidi root of the affairs of the world to the extent that they overarch from the Sunnah of the Prophet Muhammad to the companionship of righteous people, and thereby, to the creation of a good society on earth. The combination of these attributes of companionship and certainty within the relational order that is presented here, implies the attributes of divine guidance and mercy that enter through the enactment of knowledge-flows, $\{\theta\}$, into the order of things by which the socio-scientific domain of world-systems is defined. Such knowledge-flows at the epistemological and ontological levels are of a primordial category. They can include essential policies and their instrumentation while avoiding details at an initial level of discourse. Examples of such fundamental instruments connected with the Qur'an and the Sunnah are the institutions of prayer, of charity and Zakat as a prescribed and mandatory take on wealth, spending in a good cause and avoidance of interest in all its forms (Riba). Institutional details such as Mudarabah (profit and risk sharing), Musharakah (equity participation) and similar instruments are not categories of instruments at this primal level of guidance, rules and laws. The central element underlying all such instruments is Islamic economic, financial and social co-operation.

Likewise, it is important to understand here the quintessence of Tawhid as the fundamental epistemology (Al-Faruqi, 1982) upon which the other two pillars of Islamic epistemology are built. These are namely, the Sunnah and the Ijtihad or works of the learned in Islam. The learned are not solely clerics. Rather, they constitute a wide mix of all-comprehending people with the attributes of commitment, motivation and a sense of justice as purpose and balance. We refer to these attributes as the belief forming virtues of the Shara'ees (members of the Shura). The Qur'an is clear on its stand on the point of its fundamental epistemology premised on Tawhid (42:52):

> And thus have We, by Our Command, sent inspiration to thee (Muhammad): You knew not (before) what was Revelation, and what was Faith; but We have made the (Qur'an) a Light, wherewith We guide such of Our servants as We will; and verily you do guide (men) to the Straight Path...

In the above verse one can find the three levels of causality in the above verses respecting the Qur'anic theory of knowledge relating to Ω (including Φ) to Φ^* and $\{\theta\}$, as given in the expression (2.1).

In the relation (2.1), $\{X(\{\theta\})\}$ denotes the 'ontic' (evidential) order of knowledge-induced cognitive and experiential evidences and entities, whose occurrence in the world-system is due to an extensively complex but orderly system of complementary interrelationships emanating from the comprehension and application of the laws, guidance and rules formed through instrumentation at the ontological stage on the basis of the epistemological premise. This medium toward realizing knowledge-induced ontic or evidential forms is denoted by Ω.

In the relation (2.1), $W(\theta, X(\theta))$ denotes the evaluation of wellbeing in terms of the complementary variables, relations, policies and rules included in $\{\theta, X(\theta)\}$. The process from Ω to the end of the post-evaluation by means of

$W(\theta, X(\theta))$ in the first process, marks the completion of one level of knowledge formation from the epistemological to the ontic level through the ontological medium.

The evaluation of $W(\theta, X(\theta))$ on the basis of the confirmation, affirmation or revision of the earlier sets of ontic relations including the rules so formed, gives rise to New$\{\theta\}$. Sen (1983) has used a similar concept of social wellbeing in the ontological sense of ethics and the economy. The medium of realizing this new process is attained by once again referring to the epistemology in continuity and to the ontological and ontic rules so formed for deriving experiential rules and guidance from the divine roots. This medium is denoted by f3. In regard to this systemic re-origination of the creative order the Qur'an declares (27:64):

> Or, who originates Creation, then repeats it, and who gives you sustenance from heaven and earth? (Can there be another) Allah besides Allah? Say, "Bring forth your argument, if you are telling the truth!

In this and other verses of the kind the re-originative process is shown to be a universal one across space and time, for the domain of Allah is pervasive. Within these domains rules the power of Allah's knowledge enlightening the world-systems, for "He is the First and the Last".

In this way, a second Shuratic Process emerges and completes itself. It is further followed by many more of the same kind. The continuous sequences of onward moving knowledge-centered processes relating epistemology to ontology, and thereby to ontic forms thus emerge and repeat themselves with the advancement, confirmation and revision as required in the emerging experience of realizing unity as complementary relations between organic diversity. The end of these continuous processes of knowledge-flows is the return to Allah in the Hereafter (Akhira) as the Great Event (Naba ul-Azim). In this respect the Qur'an declares (78:1-2):

Concerning what are they disputing? Concerning the Great News.

Furthermore, the Great News is equivalently explained to mean the Hereafter in the verse (78:39):

> That Day will be the sure Reality: Therefore, who so will, let him take a (straight) Return to his Lord!

The fact that this cosmic and worldly experience through seen and unseen things of total creation is a cumulative experience towards the completion of knowledge in the Hereafter as it is in the primal Tawhid, is brought out in various parts of the Qur'an. Here is another verse (57:3):

> He is the First and the Last, the Evident and the Immanent: and He has full knowledge of all things.

A Generalized Model of Tawhidi Unity of Knowledge

From the pervasively relational essence of the knowledge-centered world system we can formalize the Tawhidi general-systems methodology. Toward formalizing the general system model, we consider the following expression:

$$F_1 \Leftrightarrow F_2, \tag{2.2}$$

where, F_1 and F_2 are two knowledge-forming processes (IIE-process = the Shuratic Process) for the Tawhidi world-systems 1 and 2.

Below, the symbol ‖ denotes lateral and vertical interaction by corresponding categories in the two inter-systemic IIE-processes as shown.

$$F_1 : \Omega \to_F \{\Phi\} \to_{\theta^*} \{\Phi^*\} \to_{\Omega 1} \{\theta_1\} \to_{\Omega 1} \{X_1(\{\theta_1\})\} \to \downarrow \to_{\theta 1} \text{New} \{\theta_1\} \to \text{continuity} \to \Omega = H \quad (2.3)$$
$$W(\theta_1, X_1(\theta_1)) \qquad \text{in repeated}$$
$$\text{processes}$$

$$F2 : \Omega \to_F \{\Phi\} \to_{\theta^*} \{\Phi^*\} \to_{\Omega 1} \{\theta_2\} \to_{\Omega 2} \{X_2(\{\theta_2\})\} \to \downarrow \to_{\theta 2} \text{New} \{\theta_2\} \to \text{continuity} \to \Omega = H \quad (2.4)$$
$$W(\theta_2, X_2(\theta_2)) \qquad \text{in repeated}$$
$$\text{processes}$$

Between (2.2), (2.3) and (2.4) we obtain the following IIE-interrelationships, which are uniquely governed by the fundamental epistemology of Tawhid, Ω:

$$
\begin{array}{c}
\to \quad \{\theta_1\} \to_{\Omega 1} \{X_1(\{\theta_1\})\} \to \downarrow \to_{\Omega 1} \text{New} \{\theta_1\} \to \text{continuity} \to \\
W(\theta_1, X_1(\theta_1)) \\
\uparrow \qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad \downarrow \\
\Omega : \qquad \| \quad \| \quad \| \qquad\qquad \| \qquad\qquad \| \quad \Omega = H \quad (2.5) \\
\downarrow \qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad \uparrow \\
\to \quad \{\theta_2\} \to_{\Omega 2} \{X_2(\{\theta_2\})\} \to \downarrow \to_{\theta 2} \text{New} \{\theta_2\} \to \text{continuity} \to \\
W(\theta_2, X_2(\theta_2))
\end{array}
$$

By the complex disaggregation of relations in expression (2.5) we note that,

$$\{\theta_1\} \to_{\Omega 1} \{X_1(\{\theta_1\})\} \to_{\Omega 1} \text{New} \{\theta_1\}$$
$$\| \quad X \quad \| \quad X \quad \| \quad X \quad \| \quad X \quad \| \qquad\qquad (2.6)$$
$$\{\theta_2\} \to_{\Omega 2} \{X_2(\{\theta_2\})\} \to_{\Omega 2} \text{New} \{\theta_2\}$$

Here, X denotes *crosswise* inter-systemic interaction. Such an interaction is extensive in nature and can be worked out even from this simple disaggregation when it is extended to second and higher numbers of processes (not shown). The functional mappings existing between extensive interactions, as shown, generate compound functions.

The wellbeing criterion function resulting from pervasive interaction across the interactive, integrative and evolutionary (IIE) branches of (2.3) and (2.4) is the non-linear and complex aggregation of the separate wellbeing functions belonging to these branches at their nodes, as shown. One such non-linear functional form would be the product function of complementary variables with indexed coefficients of the elasticity of wellbeing with respect to the variables of the wellbeing function. The resulting non-linear aggregation of the wellbeing function conveys a cardinal measure of complementarities among the various variables and their relations appearing in the formation and measurement of the wellbeing function. Among the variables of this criterion function are the policy and institutional ones. These imply the necessary conditions of participation among agents in the underlying decision-making process.

The joint result of interaction among the variables and their relations lead to the compound form of the branches of the trees configured in expressions (2.5) and (2.6). Such a compounding of mappings and relations is thus seen in terms of variables, their relations, the resulting wellbeing functions corresponding to such branches and their representation in the resulting wellbeing function. In this way, the attainment of complementarities among agents, variables and their relations signifies the meaning of integration following interaction among the entities.

Finally, from the continuously dynamic nature of knowledge-flows affecting decision-making, variables and their relations, emanate the evolutionary processes of further knowledge-flows and the knowledge-induced entities of the world-systems. The evolutionary nature of the interactive and integrative processes at each stage, as shown in expressions (2.5) and (2.6), brings out the importance of a simulation method of quantitative analysis in this interactive, integrative and evolutionary worldview. The emerging method here suggests replacement of all steady-state equilibrium points by multiple evolutionary knowledge-induced equilibriums (Osborne & Rubinstein, 1994). Consequently,

optimization as a method of holding the variables in an assumed end-state of equilibrium by controlled movement in the variables and made possible through trade-offs among them is totally rejected by the pervasively complementary nature of the IIE system.

On methodological grounds, optimization cannot be an acceptable method for studying the IIE world-systems phenomena, where continuous learning is permanently in place. Thereby, in such a model there cannot exist any terminally attained rest positions, except in the instantaneous case of the variables and thus their instantaneous relation and the corresponding decision-making among agents. Such an instantaneous case cannot be sustained in knowledge-induced circular causation and continuity models of learning.

Besides, the presence of the unification of knowledge attained through the principle of universal complementarities and its evolutionary learning capability rejects the idea of scarcity and constriction in resource supply. Consequently, the idea of marginal substitution to be found in neoclassical economic resource allocation is negated. The circular causation and continuity model of unified reality represented in the IIE-worldview makes risk-diversification, product-diversification, institutional development and participation among the agents, variables, resources and their relations as the permanent consequences of evolutionary learning. Knowledge augmentation by means of new learning constantly reduces the risk and unit cost of production and investment through product-, risk- and economic- diversification in the framework of the unity of knowledge as signified by the principle of universal complementarities across diversity.

The Inter-Systemic Generalization of the Knowledge-Induced Model

Expressions (2.5) and (2.6) can now be extended to inter-systemic relations. The evolution of the interactive and integrative sequence of knowledge-flows and their knowledge-induced socio-scientific variables now yield a formulation for the wellbeing function that is interconnected across numbered systems in respect to the number of ensuing interaction. Furthermore, in these relations relevant variables and their relations can be included. Thus the expressions (2.5) and (2.6) now expand and grow in complexity while preserving order. The end result is a massive tree of knowledge, whose every branch sets forth a 'pairing' relational order between different parts of the tree (nodes) and these are caused by knowledge-induction. Its fruits, leaves and other benefits denote the knowledge-induced result in the ontic form. These form the divine evidences of goodness and the causes of wellbeing.

From this complex plane of knowledge formation determining knowledge-induced forms, and thereby the wellbeing criterion, comes about growth and the evolution of processes into higher levels of similar kinds of knowledge-induced complex relations. Thus each branch is the result of a micro-IIE-process, which then combines and coordinates with other similar ones to form larger IIE-processes. Such interconnections may be seen as the cause and effect of extensive and pervasive complementarities among a diversity of possibilities. In the end, knowledge-flows, their knowledge-induced forms and their wellbeing function and relations are taken into account across branches of interaction, integration and evolution. What results is a nexus of IIE-relations between each and all following the circular causation and continuity model of unified reality. Such a knowledge-induced nexus is guided by the principle of universal complementarities among the diversity of socio-scientific possibilities across diverse systems.

The Generalized Wellbeing Objective Criterion Defined

The wellbeing objective criterion function is thus an evaluative criterion for testing the extent to which complementarities among the diversity of possibilities included in the function, has been realized during the ensuing Shuratic Processes. Thereby, the IIE-model determines by means of heuristic and empirical evaluation of the level of wellbeing attained in the learning process. Such wellbeing criterion functions are numerous across the nexus of interrelationships corresponding to the levels of the processes of world-systems but they are complemented together according to the principle of pervasive complementarities across diversity.

According to the prior discussion on simulation as the appropriate method for studying the processual nature of the IIE-model, we now note that the goal of the IIE-model in the general systems framework is to simulate such a generalized social wellbeing function, subject to the circularly complementary relations among the variables that are included in the wellbeing function. The resulting evolutionary aggregate wellbeing functional is then a compounding of all the elementary social wellbeing indexes along branches of the knowledge-tree.

On denoting the numbered systems by l and k, with $k \neq l$ ($=1,2,\ldots$), and interaction by $i = 1,2, \ldots$ we obtain the detailed version of the simulation chains for the IIE-process-oriented circular causation and continuity model shown in (2.5) and (2.6). This is shown in expression (2.7).

$$\Omega \to_{\gamma} \{\Phi\} \to_{r} \{\Phi^*\} \to_{fi} [\theta_{kl}] \to_{[\theta kl]} [X_{kl}(\{\theta_{kl})\}] \to_{i} \to_{[\Gamma'(kl)]} \text{New}[\theta_{kl}] \to \Omega = H \quad (2.7)$$
$$[W(\{\theta_{kl}\},[X_{kl}(\theta_{kl})]]$$

The square brackets indicate the matrices of variables, relations and wellbeing functions corresponding to the ($[\theta_{kl}],[X_{kl}(\theta_{kl})]$)-entries across (k,l)-systems for

given numbers of interaction (i). The same matrix meaning applies to every monotonic transformation of the relations of expression (2.7) starting from f^* onwards except $\Omega = H$, which cannot be augmented due to its nature of super-cardinal completeness.

Some simplification can now be introduced in the chain of relations shown by expression (2.7). The variables as shown are replaced by the limiting values of knowledge-flows and their corresponding knowledge-induced forms across diverse systems. This happens at points where interaction leads to consensus (integration) in the determination of rules and guidance and the acceptance of the results of socio-scientific evaluation by the Islamic community represented by their Shuras. In this way, the terminal values of i would be assigned to denote the number of interaction that lead to consensus in the $([\theta_{ikl}],[X_{ikl}(\theta_{ikl})])$-values, and hence in the formation of the social wellbeing functions.

A technical version of the social wellbeing objective criterion is given in the technical appendix. In this appendix both the general way of estimating a social wellbeing function under conditions of Tawhidi unity of knowledge and a specific case are presented. We note that the estimation of the social wellbeing criterion is not simply based on analytical nicety but is a deeply intertwined institutional function. Institutional approach to quantitative estimation must therefore be used most importantly over sheer mathematical nicety.

The Qur'anic Model of Development Derived from the Tawhidi Episteme

The Qur'anic model of development is premised on the imagery of the rich diversity conveyed by the ecological balance, purpose and felicity that the good things of life convey. The model of ecological balance in agriculture and nature is taken as an example for instruction along these lines (Qur'an, Chapter 16, Nahl, The Bee) and the imagery of ecological perfection for the supreme felicity in the

Hereafter (Qur'an, Chapter 55, Ar-Rahman -- Allah, the Most Gracious). In this wholeness of the ecological balance is included the wellbeing of mankind attained through justice, equality, compassion, stability, abundance and responsible behavior. Thus the model of Balance (Mizan), Purpose (Maqasid) and Progress (Falah) in the Qur'an is one of human ecology.

According to Hawley (1986), the study of human ecology is taken up upon three perspectives. First, there are interdependencies among members of the population. (2) Intra-systemic development occurs carrying the system to its optimal size. (3) Evolutionary movements of the populations with advancement in technology and capability carry the system into their growth form.

We refer here to the epistemological model formalized in expression (2.1) – (2.7) along with the many interactive complementarities and creative evolution that exists between the variables $([\theta_{ikt}],[X_{ikt}(\theta_{ikt})])$ and the formation of the social wellbeing functions. The intra-systemic interaction, integration and evolution (IIE) within a system (1) and the inter-systemic IIE-process conveyed by expression (2.2)-(2.6) are examples of the ecological complexity that occurs out of unification of systemic knowledge, feedback and networking. In this the result of every elementary IIE-process combining with an increasing plethora of similar process unravels the growing benefits of unity of knowledge towards defining the moral, social and economic contexts of all facets of development as a process.

Islamic Differences from Giddens' Idea of 'Prescencing' in Development

The conception of Giddens' 'presencing' and the importance of development ethics as explained earlier now enter center stage in the Islamic worldview of socio-economic development. Yet there are significant differences between the various concepts here, as the Islamic precept of unity of knowledge is immutably

premised on divine oneness, from which is derived the foundation of the Islamic Law, the Shari'ah.

What are some of the differentiating implications? Let us consider a number of development issues and indicators to answer this question.

1. Community

The Islamic community (Ummah) in Islam is the most important domain of actions and responses in the IIE social perspective. A learned and righteous person who is well versed in the *Shari'ah* governs the community. He (Amir) is elected by the Shuratic will of the community. Representation in this regard is by consensus of the group representatives who are well versed and respectful of the Shari'ah. The Islamic community cannot come about by coercion. Only disseminating knowledge follows its legitimacy by its acceptance by a simple majority vote or consensus of the community. The Qur'an is clear on this point of a non-coercive political right and privilege – "Let there be no compulsion in religion: Truth stands out clear from Error: whoever rejects Evil and believes in Allah has grasped the most trustworthy hand-hold that never breaks. And Allah hears and knows all things." (Qur'an, 2:256). Yet it is equally vested on the Islamic Government to take every precaution against the opponents of Islam once the Islamic state has been formed by the will of the people.

The coming of the Islamic community upholds the Shari'ah by all means in accordance with the mandate of the people that has given this authority to the state. The Shuratic legislation thus forms the most instrumental groundwork for the establishment and continuance of the Islamic community.

Within the Islamic community are organisms of life. In the developmental scale these are the individual, the family, markets, resources, economy and

institutions. Within the institutions are enterprises, corporations, charitable and Islamic organizations and the government. All these ought to be Islamized. The grassroots of such an organizational structure cause the cyclical feedback interrelationship between the organisms in the kind of IIE knowledge-flows emanating from one process, one entity and one system to another in the epistemological model of Tawhidi unity of knowledge given by expressions (2.1)-(2.7).

The Islamic community (Ummah) is an extended domain of integrating activities starting from the small community level to the national and international levels across the Muslim World. The same world community of Islam does not exclude interaction with the non-Muslim World. Rather the Ummah interacts with the latter in ways pronounced by the Shari'ah in the areas of trade and development, organization of markets and the use of instruments that are conducive of implementing the Tawhidi worldview in the world-system of development.

In a capitalist globalizing world in which even the limited transformation into Islamization of the development process is incomplete, segmented markets are bound to arise to promote and protect the resource mobilization across Islamic banks, sub-economies and the grassroots. Examples here are the segmented markets of the Islamic banks and their limited clientele, though with a fast increasing popularity behind it. The Islamic banks mobilize their resources revolving around the Mudarabah and Musharakah instruments and in all other forms of primary and secondary transactions, such as, cost-plus pricing (Murabaha), foreign trade financing, unit trusts, rental and secondary capital market securities yielding interest-free yields. Coupon yields, which are interest bearing, are replaced by profit-shares arising from the direct link between financial and money resources and the real economic transactions approved and recommended by the Shari'ah.

The linkage of the financial and money resources with real economic activities approved and recommended by the Shari'ah is a promising source of economic growth. It results in employment, appropriate technology, and economic stabilization by the choice of appropriate technology, dynamic regimes of life-fulfilling goods and services, all as market driven activities in accordance with the Shari'ah.

Here it is argued that only savings into liquid holdings can cause withdrawal from the economy. Resource mobilization is the opposite of locking in resources in the liquid kind. The incentive behind saving is the rate of interest that withdraws funds from their otherwise potential use, since not enough spending outlets are available during a given time period. The higher the attraction for interest rate the higher is the saving in liquid funds. The higher the rate of savings the lower is the mobilization of financial resources in the real economy and the lower is the rate of economic growth. The closer is the transformation of the economy into dynamic regimes of life-fulfilling needs the lesser is the waste of resources, the more is the participation, the greater is the human resource development and employment process, appropriate technology and both risk and product diversification. These are sure preconditions for the productive transformation of the Ummah. From such precepts all cultures ought to learn to coordinate developmental activities. See technical appendix for a more detailed formalization of the arguments presented here.

Islamic Ethics Contrasted with Development Ethics in the Literature

1. Contrasting with Ethics in Development of Schumacher, Goulet and Sen

The difference between the ethical orientations of the development perspectives according to Islam are found to be different from those pronounced by Schumacher and Goulet. The Islamic development perspective of the community

is premised on a pervasive criterion of unity within a systems framework of interrelationships and feedback. This is the kind of Tawhidi unity of knowledge across systems. It is now played out by the recursive linkages between money, financial resources and the real economy along with its many dimensions of productive and wellbeing activities. The methodology of such a system of unity of knowledge cannot be derived from sheer reference to development ethics as an exogenous condition. Markets will not react and transform to such exogenous market consequentialism (Sen, 1985). The exogenous nature of development ethics in the literature is caused by its silence on the types of instruments that need to be invoked to cause a systemic unification of knowledge, and thereby bring about preference changes that establish relational feedback between human behavior and the ethical transformation of the market system. This kind of circular causality of feedback relations we refer to as endogenous ethical transformation.

In the Tawhidi epistemological methodology formalized by the expressions (2.1) –(2.7) the extensive form of circular causation and linkages is obvious by the systemic extension of the IIE-process. This does not occur automatically. The transformation is affected by the most important factor, knowledge-flows by interaction leading to integration (consensus) and evolving thereafter into more experiences of the same kinds at higher levels that is into regimes of dynamic life-fulfilling goods and services. Yet the possibility of de-learning also remains, as the system can decline into 'de-knowledge' along a neoclassical regime of optimality, compete information, and methodological individualism and independence. The latter is the case of Muslim governments though not the Muslim grassroots today as the former try to catch up with the capitalist globalization forces.

2. Poverty-Centered Growth

Only very recently, commencing near to 1997, the World Bank has been calling for a turn of focus of economic growth on poverty-centered growth. The community model of grassroots development promoted is the participatory one. The above-mentioned kind of social reproduction process of ethical endogeneity is strongly established in the words of the World Bank (2000, p 7). The World Development Report states:

> The choice and implementation of public actions that are responsive to the needs of poor people depend on the interaction of political, social, and other institutional processes. Access to market opportunities and to public sector services is often strongly influenced by state and social institutions, which must be responsive and accountable to poor people. Achieving access, responsibility, and accountability is intrinsically political and requires active collaboration among poor people, the middle class, and other groups in society. Active collaboration can be greatly facilitated by changes in governance that make public administration, legal institutions, and public service delivery more efficient and accountable to all citizens -- and by strengthening the participation of poor people in political processes and local decision-making. Also important is removing the social and institutional barriers that result from distinctions of gender, ethnicity and social status. Sound and responsive institutions are not only important to benefit the poor but also fundamental to the overall growth.

3. Entitlement, Empowerment and Development

The grassroots participatory development process, poverty-centered development and networking feedback among a growing number of socio-economic and institutional organisms under the principle of unifying linkages between them, are at the background of entitlement and empowerment. Islamic development aims at attaining such grassroots goals by the mobilization of financial and money resources directly into the real economy in accordance with the Shari'ah rules and related development financing instruments. Entitlement and empowerment are thus automatically developed by the participatory and increasing ownership

possibilities. The shareholding between empowered groups at the grassroots and the larger enterprises is increasingly enhanced by the mobilization of financial resources, wage labor and progressive human resource development that come about in the participatory venue. Profit sharing is enhanced giving further incentive to the continuance of the co-operative ventures for the mutual benefit of the small and large-scale entrepreneurs.

The other important instrument for forming entitlement and empowerment is the wealth tax called Zakat. Zakat is not a poor due. It is a mandatory transfer from the eligible Zakat-payer to the needy in the eight categories of potential recipients mentioned in the Qur'an (Qur'an, Chapter 2:177). Zakat forms the fiscal policy instrument in the Islamic community and can be taken up in organized forms of collection and disbursement either at the community level or at the state level. This is the order of preference. The last option is to allay the disbursement individually but keeping in mind in all cases the productive as well as the moral and social needs underlying Zakat expenditure. For this reason the meaning of the term Zakat is encompassed by the attributes of growth and purification. The two attributes are combined in the Tawhidi model of unity of knowledge by interconnecting the human resource development, enterprise and increasing employment with participatory possibilities for gaining entitlement and empowerment at the grassroots.

Zakat is meant to eradicate hard-core and absolute poverty, not relative poverty. In the dynamic regimes of life-fulfilling goods and services Zakat brings out the very poor from their low rungs by productively transforming their capability and then rendering them to market participation in the midst of the human ecological process that an ethical transformation of the market system generates. The moral and social function of poverty alleviation is thereby related with the economic function of productive transformation. The Tawhidi principle of complementarities across diversity is once again found to replace the

neoclassical postulate of marginal rate of substitution in resource allocation signifying competition and conflict between alternatives. The IIE methodology is once again in play in this development process centering on Zakat.

As opposed to Zakat the charity of alms (Sadaqah) in Islam need not be pegged to a focus on productive transformation in the poor. But according to the mention in the Qur'an of those deserving charity including Zakat who do not beg but are in need, it becomes established that Sadaqah can be governed by the same purpose, objective and rules as Zakat. Charity (Sadaqah) is thus not a handout or a free rider payment in Islam. Rather even if the very poor and the very old and the needy receive these payments, they are still meant to be funds for social security. Hence Zakat becomes a financial flow that connects with current consumption needs and future social investments for developing entitlement and productive capability through involvement in the Islamic ethical market order.

Population and Development

Mainstream development theory assigns a negative role to population growth on the growth and efficiency performance of developing countries, particularly those countries that are apparently population dense. The conditions of poverty, urban squalor, health problems, high employment and low human resource development have been frequently assigned to population density and growth in the populated developing countries. Whether this causation is true is in question. The fact of the matter is that the indicators of growth rate of national output and capital formation by means of the growth of savings have been always been used as indicators to measure development. Today the World Bank and the IMF attach the highest importance to economic growth as the sole basis of wellbeing (Commission on Global Governance, 1995). Such a causation between population and economic growth is flawed for reasons that no role is allowed for the policy and market restructuring that could realize the conditions that can have self-organizing rather

than imposed checks on the fertility behavior. The result would then be an automatic household choice on fertility decision. Nerlove (1974) and others have referred to such an approach in the determination of the role of population on economic growth under conditions of increasing household choices as the microeconomics of fertility behavior.

The world problem of scarce resources is not population size. Rather it is the lack of the quality of human resource derived from the population. That means training of the Muslim mind along lines of the Tawhidi worldview to become technologically adaptable, resource conscious and interlinked in the use of resources across the various sectors, projects and outlets of productive spending. In other words, competent Muslims are assets rather than liabilities for a society. See technical appendix for a formalism on Muslim competence as a form of the social wellbeing index.

A Formalism Rejecting the Argument of Adverse Relationship Between Population and Economic Growth

In the aggregate production function the following causality would alter the dismal picture on the relationship between population and economic growth painted by many development economists:

$$Q \leftrightarrow Pop$$
$$\uparrow \qquad (2.8)$$
$$(X_a, X_m, p_a/p_m, x, G, P)[\theta]$$

In expression (2.8) Q denotes the aggregate output for the measurement of economic growth. Pop denotes population size. X_a denotes agricultural output. X_m denotes manufacturing output. p_a/p_m is the price relative between the prices of agricultural goods and prices of manufacturing goods, respectively. x denotes the

age structure of the population. G denotes gender distribution of the population. H denotes expenditure in human resource development. P denotes a policy vector of participatory development financing instruments, as for instance Mudarabah and Musharakah along with a host of secondary financial instruments. θ denotes a limiting value of knowledge-flows generated in the participatory processes emanating from the IIE-process.

In the above case, the expression is re-stated in the following form:

$$\text{Pop} = f_1(X_a, X_m, p_a/p_m, x, G, H, P)[\theta] \qquad (2.9)$$

With a systemic linkage between X_a and X_m and with stable relative prices p_a/p_m, it is expected that a stable population structure can be maintained. These can promote household choice on fertility behavior that would determine the labor force support required for the agricultural-manufacturing sectoral linkage. Consequently, the microeconomics of fertility behavior would eventually determine the x and G variables. The input of H variable will further influence the above trend of change. These variables are driven by the participatory knowledge-flow variable that emerges from the household, community, market and institutional processes. In this milieu, the participatory policy variables such as, Mudarabah, Musharakah and the gamut of primary and secondary financial instruments revolving around Mudarabah and Musharakah will influence the change by a combination of institutional and market forces. There is no need for family planning in such instances. An automatic adjustment under conditions of discursive behavior opening up opportunities will take effect. $f_1(..)$ denotes the functional relation explaining the systemic interaction between the variables in response to θ-values.

Expressions (2.8) and (2.9) result in,

$$Q = f_2(X_a, X_m, p_a/p_m, x, G, H, P)[\theta] \qquad (2.10)$$

Furthermore, the causality $Q \leftrightarrow$ Pop through the functional relations f_1 and f_2 will generate a number of circular causations between these variables, as explained by the IIE-process methodology.

One can now see that we have a detailed system of many IIE relations between the variables of expressions (2.8)-(2.10). It is possible that good agricultural-manufacturing linkage will have a positive relationship to Pop. Consequently, p_a/p_m will also have a positive relation both with X_a-X_m linkage, and thereby, with Pop. x, G, H, which would be treated as exogenous variables in mainstream development theory would now be endogenous variables, being related recursively to the changing economic structure of agriculture-manufacturing sectoral linkage and the evolution of the relative prices. x would reflect the structure of young population. G would reflect a greater proportion of male population in the labor force, as women continue to sustain a stable population growth structure. The participatory policies enhance the transformation process positively in the direction of Pop and also between themselves. In all of these, the market-polity interactions generate active role of the θ-value. That is, the IIE-process or the Shuratic Process of systemic unity of knowledge plays the guiding role in the sectoral linkages and the economic structure.

In the above relations with the positive relation of the various variables to Q and Pop, it is illogical that the causality between Q and Pop can be negative. We therefore conclude that structural changes caused by market-polity IIE-process are primarily necessary to determine the exact causality between Q and Pop. It is no wonder that the agricultural sector has remained neglected in terms

of infrastructure development and productivity while the developing countries over-invested in the manufacturing sector to catch up with the growth paradigm. On the other hand, the world capital market volatility adversely affected the economies of the least developing countries by their currency runoff. This caused massive foreign indebtedness, inflation and underutilization of human resources. The nineties was thus a lost development decade.

The Islamic development worldview under the *Tawhidi* unity of knowledge applied to systems gives a holistic view of population in the unifying polity-market system that is guided by appropriate participatory policies. These are derived and evolved by the IIE-process as it applies in this particular case of economy-wide participatory linkages.

Demographic Transition and Economic Change

The above characterization of population-economic growth causality in the Islamic and contrary frameworks brings us to investigate the nature of demographic transition in the context of such a complementary relational worldview. Here an altogether new perspective demographic transition emerges in relation to the knowledge induction of the underlying systemic unification processes. The Giddens' idea of 'presencing' applied to a continuous phenomenon of change and organization in the knowledge-induced world-system causes evolution of the structures of the unification processes. Consequently, a dynamic version of the concept of demographic transition emerges.

What is the meaning of demographic transition? In mainstream literature demographic transition or the changing structure of the population goes through four stages. The first stage is marked by a young population, in which due to the undeveloped state of medical care and a primitive agrarian economy where women mainly attend to the household chores, infantile deaths equal births. The

result is a stationary natural rate of growth of the population structure. The second stage is characterized by a stable population growth rate, with the total birth rate exceeding the total mortality rate. The health system has improved and the economy is growing under the force of population change from which the stock of young and productive labor is drawn. The third stage is characterized by the aging of the population and a social preference to have fewer children, a smaller family while benefiting from the technological advancement in the economy and an improved health care system. An aging population results from a low total fertility rate canceling the low total mortality rate due to longevity. The fourth stage is characterized by an incipient decline of the population as the stock of the aging population after surviving to an old age is now dying and the fertility rate is not picking up due to the aging structure of the population and the choice to have smaller families with fewer children. The total mortality rate now exceeds the total fertility rate causing a negative population growth unless immigration is encouraged to reverse this trend. What is true of population demographic dynamics is equally true of the active labor force because growth models assume that a given percentage of the population, the labor force participation rate enters the labor force over a period of time.

The above-mentioned stylized phases of demographic transition are neither a theory nor empirically validated for all societies. Such demographic transitions have not delineated the changing nature of population in any of the Muslim countries, where population is permanently young because of the nature of familial division of labor and a population-prone social and economic change. The Middle East countries are characterized by young population structure even as they have marched into the modern society and have enjoyed affluence from the oil revenues. In Palestine and the Southeast Asian Muslim countries a growing population is a political necessity despite the growth of the latter into the modern age of high technology. Aging population is nowhere to be heard of throughout the Muslim World.

When we link the human resource development futures with the above-mentioned delineation of demographic change we obtain a very neoclassical idea of human capital in tandem with the narrow scope of economic efficiency within a broader context of social wellbeing.

Firstly, we note that inter-sectoral and inter-occupational competition for so-called scarce resources leads to economic growth and development determined by the principle of resource substitution between competing alternatives. This is the permanent embedding of trade-offs between alternatives in such competing alternatives. The skill, productivity and resource constraints of the labor market, the absence of sectoral and factor complementarities and the excess demand for wants rather than needs, combine to make individuals and households individualistic in preferences, preferring smaller families for the enjoyment by oneself of the material demands of life. This is the kind of causality to be found between the human preferences of an industrializing society evolving through competition and self-interest rather than social cohesion and participation in the complementary but diverse possibilities that life offers.

We also note that the stylized form of demographic transition on which major policies on population control are made, is a sequence of discrete phases. Whereas in reality, population change is affected by economic and social forces that change and evolve continuously. Consequently, the demographic transition from one phase to another is to be viewed as a continuous process. Thereby, it is neither necessary nor possible to maintain the sequencing as is assumed in the stylized model.

The fourfold demographic transition is the result of a particular perception by science and the health and medical care system and the socio-economic development planners to govern economic growth by hedonic consumption behavior of the affluent few. For that is the way capitalism grows by means of

individualism, competition, economic efficiency and maximizing of self-gains in various forms. In this system of social and economic relationships affected by individualist human preferences, retirement insurance premiums, medical and health care can be construed as a form of technology. They prosper by the high social cost caused by an aging population adversely affecting rising health cost and retirement cost in the face of increasingly declining cohorts of young people in the labor force to produce the social product (Kotlikoff, 1989).

On the contrary, the principle of complementarities across diversity presents the sign of systemic unity of knowledge. In expressions (2.8)-(2.10), we have exemplified such complementarities by linkages between sectors and productive factors with appropriate technology and market friendly policies supporting population structure. Complementarities across systems induced by the knowledge-flows flowing from the discourse-centered search, discovery and implementation of Shari'ah-recommended instruments induces a continuous pattern of change in the economic-demographic relations (Choudhury, 1978, 2001). Continuous knowledge-induction of the participatory process of household, community and the economic order brings about free choice on the pattern of population structure that establishes complementarities between household and the economic sectors and maintains a stable population growth that evades the long-run plunge into the high social costs of an aging population (Kotlikoff, 1989).

The Tawhidi epistemological methodology of the IIE-process is once again found to be instrumental in explaining the continuous dynamic evolution of decision-making by means of the participatory process. In this way, through the complementary principle the household production function is linked up with the sectorally interactive and knowledge-induced production menus. The instruments of the Islamic political economy discussed in Chapter 4 are once more usable in the economy-demography linkage when population is seen as the productive

support for the sustainability of the relations between the principles, socio-economic variables and the principal instruments.

The causality between economy and demography as explained by the expressions (2.8)-(2.10) defines population change as an endogenous phenomenon (Nerlove, op cit; Choudhury & McPhee, 1992). The Qur'anic endogenous population theory links the purpose of economy, population and family enjoyments to the central goal of the Hereafter. The development process so engendered interactively between these categories in view of the Hereafter, i.e. the Tawhidi knowledge perspective, is an important socio-economic variable in the knowledge-inducing process. In this regard the Qur'an declares (18:46): "Wealth and children are the adornment of the life of this world. But the good righteous deeds, that last, are better with your Lord for rewards and better in respect of hope." Hence we have the distinction between the two kinds of population structures, namely, Pop(mainstream economic-demographic relation) and Pop(θ) along with its interrelations with the other θ-induced variables, as pointed out in the particular case of expressions (2.8)-(2.10) and the general case of social wellbeing with its circularly related constraints shown in expression (2.7).

The Concept of Resource Mobilization Versus Savings in Capital Formation for Economic Growth and Development

The theme of this section will be taken at length in later chapters of this book. It may only be mentioned here on passing that savings as understood in economic theory has no meaning in the Islamic perspective of resource mobilization between the financial and monetary sectors and the real economy. Saving is a withdrawal from real activity while resource mobilization is spending in the Shari'ah-driven dynamic regimes of life-fulfilling goods and services.

According to an interest-bearing regime of economic activity savings are formed by interest earned and accumulated. Accumulated value of savings is then turned into investment as a supply of needed funds. But there is a contradiction here. Savings remain attractive under two incentives, high rates of interest and a length of time for holding it in liquid form, given income level. The volume of savings is directly related to these two factors. Both of these factors positively affecting savings are contrary to useful spending, as saving is always at every point in time a withdrawal irrespective what part of that is spent for spending in the future out of accumulated capital. Hence there is an impediment to investment, and thereby, to the generation of gross national product. The latter are generated through productive activity, not by savings as time-related interest-bearing resource withdrawal from real economic transactions.

Contrarily, if savings as resources are continuously mobilized into productive and socially appropriate investments, then there cannot exist the holding incentive. Now interest rate becomes logically unwanted in such a case of resource allocation. All that matters is the mobilization of resources into useful spending outlets. Such categories of spending include consumption, investment and government expenditure and the expansion of trade. Consequently, the goals of attaining social wellbeing and production of wealth are realized in relation to an expanding accessibility to useful ends.

Historically, the economically most depressive times are found to be associated with high levels of savings. This case happened in the face of a contraction of money supply during depressive times, when otherwise it would have been necessary to finance the spending levels of an ailing economy. Both of these cases happened during the Great Depression (Bordo, 1989).

In modern times, the speculative fervor of savers is well known to have caused capital-market turmoil all around the world. The cost of protecting

national governments from such recurrent debacles in recent times has resulted in high taxes for building up Government exigency funds. Besides, interest rates and price levels have simultaneously remained high in all adversely affected economies.

Indeed, the financial sector grew in its size with a large amount of savings as speculation capital took hold over herding behavior in currency swaps, hedge funds and E-commerce gimmicks. Thereby, the wealth of the affected nations declined in the face of high interest rates, speculation capital, herding behavior among savers, high tax rates and inflationary pressure. All this happened despite the existence of high levels of savings with speculative finances.

Each of the activities mentioned above is found to depend critically on the movements of interest rates and savings. Economically regressive consequences of interest rates and savings in speculative funds thereby reflect the mainstream argument that wealth is formed by making the real economic sector and the financial sector compete with each other. Withdrawing funds from the former to the latter due to the interest and saving lure is both a socially and economically unwise strategy. See technical appendix for a formalism on savings as a resource withdrawal when such savings do not match social and productive spending.

Does Saving Contribute to Capital Accumulation for Economic Growth?

We note that mainstream economic arguments legitimize savings as the basis of capital accumulation. The argument made is that savings would lead in turn to spending and consumption, and thereby, generate economic growth over time. This is a misleading economic argument with grave social consequences.

Economic growth is measured by the increase in the real value of national income over time. In this macroeconomic picture it matters little how capital

accumulation takes place. Capital stock can increase with speculative finances, giving the impression that transactions in the financial sector are booming. Financial valuation is then recorded in the balance sheets of businesses. It is then entered into the national balance sheet. The same funds that initially record an increase in the level of economic activity, experience a flight of capital in the presence of speculative portfolio investments. Thereby interest rates increase in the face of the speculative risk. The flight of capital combined by interest rate hikes are followed by scarcity of funds for financing real economic activity, even though there is a flair for savings now.

In the external sector, export-orientation of the nation declines and import-dependence increases, causing debts and external sector imbalances as well as creeping inflation and currency devaluation. Development sustainability is lost in the name of short-term notion of economic growth caused by the temporary sign of a fattening financial sector, yet conflicting with real sector activity.

One notes that behind the capital-market turbulence in Asian economies, Mexico, Brazil and Russia in recent times, was this uncertainty of sustained growth as the economies grew disproportionately under the force of speculative funds. The real economy was deprived of financial support as speculative capital started to fly out of these regions. Governments became bewildered by their currency runoff. Interest rate had to be increased. This halted real economic activity. Employment and incomes remained impoverished. Debts and the associated transparency problems of non-performing loans compounded the situation (IMF World Economic Outlook, 1998, 1999).

Economic and social ills thus combined to reduce the wealth of developing nations when they continued to base their agenda of economic growth on the savings doctrine of capital accumulation. The concept of resource mobilization brought about by generating linkages between the real and the

financial sectors remained unknown in their development plans and programs. Today, following the global financial turmoil a new theory of financial and real economy complementarities can provide a potentially new and safe ways of reconstructing the global financial and monetary architecture (Commission on Global Governance, 1995).

There is however an important assumption underlying the positive role relating resource mobilization through spending to economic growth and wellbeing. This is as the Shari'ah ruling warrants spending in the good things of life. That is spending is in those life-sustaining goods and services that bring about economic stabilization and gains in productivity both socially as well as economically in the complementary model of resource use. This is the message of unity of knowledge in the Tawhidi worldview. Wellbeing is linked with spending in such life-sustaining regimes of development, not through spending in the wasteful artifacts of life.

Further Issues of Socio-Economic Development in Islamic Perspective

Another critical issue for the participatory perspective of the Islamic political economy is the study of complementary relations between productive factors, such as labor and capital in the aggregate production function. Such a function is used to explain the generation of value added and national income in macroeconomics and it becomes the source for studying economic growth. It may only be mentioned here on passing that the instruments of Mudarabah, Musharakah and related participatory instruments taken up within the discursive medium of the Shuratic Process applied to the development paradigm negates the possibility of marginal rate of substitution between productive factors. The complementary form of the joint production function thereby has an altogether new meaning for economic and social organization in the Islamic political economy.

Conclusion

Islamic conception and application of the development paradigm takes the grassroots approach to human development in the extensive sense of a human ecology where linkages in diverse systems convey the meaning of unity of knowledge. When such a precept of unity of knowledge is derived and applied by means of the principles and instruments of the Tawhidi worldview a distinct epistemological meaning of unity of knowledge emerges. To understand and apply this unique Tawhidi epistemological methodology is the groundwork of all issues and problems of the Islamic world-systems. We have formalized such a unique model in its generalized form to the particular theme of socio-economic development.

The grassroots focus in socio-economic development premises the Islamic methodological approach on the discursive model of decision-making, social response and action. This is the Shuratic Process or the interactive, integrative and evolutionary process, which we have formalized in this chapter. Such an approach contrasts distinctly with the aggregate methodology of macroeconomics, which forms the bulk of economic development theory. Consequently, the treatment of key indicators, such, population and development, poverty alleviation, human development, community and the formation of the social product, are viewed in the perspective of a systems aggregation process commencing from the knowledge-inducing linkages of diversity of entities. This is the principle of pervasive complementarities with diversity shown here to thoroughly contrast with the marginal rate of substitution of the neoclassical foundation of the aggregate production function used to study economic growth.

TECHNICAL APPENDIX TO CHAPTER 2

1. A Multidimensional IIE Model of Development in Islamic Perspective

Consider the expression (2.5) of multi-system IIE-processes in the framework of the Tawhidi unity of knowledge.

$$\rightarrow \quad \{\theta_1\} \rightarrow_{\ominus1} \{X_1(\{\theta_1\})\} \rightarrow \downarrow \rightarrow_{\ominus1} \text{New } \{\theta_1\} \rightarrow \text{continuity} \rightarrow (1)$$
$$W(\theta_1, X_1(\theta_1))$$

$$[\Omega: \rightarrow S] \quad \| \quad \| \quad \| \quad \quad \| \quad \quad \| \quad \Omega = H \quad (A2.1)$$

$$\rightarrow \quad \{\theta_2\} \rightarrow_{\ominus2} \{X_2(\{\theta_2\})\} \rightarrow \downarrow \rightarrow_{\ominus2} \text{New } \{\theta_2\} \rightarrow \text{continuity} \rightarrow (2)$$
$$W(\theta_2, X_2(\theta_2))$$

At the level of $[\Omega: \rightarrow S]$ as the fundamental epistemology the Sunnat Allah (divine laws) is denoted by Ω. This is followed by the derivation of Sunnah of the Prophet Muhammad, S, in reference to the Qur'an, that is from Ω.

On the topic of socio-economic development this means the organization of the worldview according to a unique premise of [unity (Tawhid), balance (Mizan), purpose (Maqasid), Certainty (Haqqa), Wellbeing (Falah) and evolutionary continuity (Khalq in-Jadid)]. The epistemological derivation also points out that such a process underlying the formation of knowledge in all organisms of life and society is repeated in diverse ways until the Hereafter. The creations theory of the Qur'an is thus the continuously knowledge induction of all the world-systems. Likewise, it also encompasses the continuous movement of the opposite, de-knowledge in the plane of falsehood.

[Ω:→S] guides the created world-systems (2.1) and (2.2) [thereby multiples of these] according to the IIE-processes as was explained earlier. Now knowledge-flows derived from the fundamental epistemology of understanding unity of knowledge premised on [Ω: →S] through the discursive search, discovery and implementation phases as shown, delineates the meaning of development in Islam to be knowledge-induced, pervasive complementarities, diversity, grassroots oriented with extensive growth into higher echelons of interactive and integrative organisms that evolve by the force of knowledge induction. The attribute of continuous knowledge-induced advance is intrinsic in the development process. This is signified by the attribute of the evolutionary re-originative orders referred to in the Qur'an as the Khalq in-Jadid.

In the following stages the IIE-process is exemplified in reference to the institutional order in the development paradigm [note italics].

[Ω: →S]:   This is the primal stage setting the development process in the epistemological framework of the Tawhidi unity of knowledge as the unique worldview for all world-systems, issues, problems and analytical thought. The Qur'an and the Sunnah combine to raise the human consciousness to this level of understanding. See many verses of the Qur'an regarding the systemic unity of life and thought organized in a pre-ordained ways where the Signs of Allah (Ayath Allah) are reflected in all artifacts of life.

[building the conception of the unified worldview of development by means of the tenets of the divine laws: morality, ethics, principle of unified complementarities across diversity]

$\{\theta_1\} \rightarrow_{\Omega_1} \{X_1(\{\theta_1\})\}$: This is the process of deriving knowledge-flows from the complete, absolute and perfect knowledge stock of Ω through S, in respect to diverse issues and problems of life and thought. The IIE-process or the Shuratic Process is thus a discursive one in reference to $[\Omega: \rightarrow S]$, which now along with the formation of knowledge-flows forms the groundwork of the Shari'ah, the Islamic Law. It guides the development process, the choices of individuals and society and the organization of diverse aspects of life and modes of thinking. The formation of the consensual $\{\theta_1\}$ results in prescribed ways of doing things in the development phase as signified by $\{X_1(\{\theta_1\})\}$ through the transmission process (the mode of translating knowledge-flow into action). Among these are community development, population, financial and real economy, sectoral linkages for generating growth to attain social wellbeing, thus poverty alleviation, eradicating inequality, complementing co-determined relationship of the Shura between the productive factors etc. The goals of entitlement, empowerment, justice and equality are embedded at this level according to the attributes that underlie the $\{\theta_1\} \rightarrow_{\Omega_1} \{X_1(\{\theta_1\})\}$ in the Shuratic Process.

[Shuratic Process, justice, distributive equity, productivity, freedom of participation with communitarian values, development variables according to participatory values and instruments in the light of the principle of pervasive complementarities]

$W(\theta_1, X_1(\theta_1))$ denotes the post-evaluation of the experience in attaining systemic unity of knowledge through the $\{\theta_1\} \rightarrow_{\Omega_1} \{X_1(\{\theta_1\})\}$ process. Note that $[\Omega: \rightarrow S]$ as the fundamental epistemology remains immutable to change. That is, the issue of community development as an

example will be settled by the circular causation in unity by linkages and complementarities among the various variables. Some of these we have discussed as entitlement, empowerment, determination of appropriate technology, markets of ethical goods, human ecology issues and institutional actions on co-determination between productive factors, management, labor and common shareholders in the Shura now extended to the micro-levels and to the relational level of analytical functions.

[economic factors, technology, markets, money, finance, institutions, management economy-demography dynamics and participatory instruments]

New {θ₁} → continuity is the attribute of creative evolution, the Khalq in-Jadid of the Qur'an that bestows the continuous and pervasive learning role of the world-systems by the presence of Allah (Sunnat Allah) in all of them in a unique way. In the development process this is known as sustainability of the Islamic knowledge-centered worldview of development as described.

[development continues by post-evaluation of policies, programs and the understanding of complementary relations received from the socio-scientific order]

→ continuity → The continuity of the above-mentioned process means sustainability of the development process by its underlying moral and material complementary process is established in perpetuity through the Shuratic Processes.

The repetition of similar processes for systems 1 and 2 as shown in expression (A2.1), means the uniqueness of the Tawhidi epistemological methodology in all systems and thus the possibility of inter-systemic IIE-process to prevail. In the development paradigm the string (1) could denote the demographic dynamics and string (2) the economic dynamics. The interaction between these systems means the economy-demography dynamics governed by the Tawhidi worldview.

2. Estimation Paradigm of the Social Wellbeing Objective Criterion

The simulation problem of social wellbeing function in the perspective of circular causation recursive relations embodied in the wellbeing system is to be viewed in two parts. The first part comprises institutional/policy guidance. We refer to this phase as Social Action according to the Tawhidi law of unity of knowledge. This principal sub-process of the complete IIE-process assigns ordinal values to θ. That is, according to different ranges of θ-values representing the degree of knowledge attained in the Shuratic Process there will be Action on the socio-economic domain. The second part of the Shuratic Process comprises the circular Social Response back to the Shura as polity. In this way by continuity of these recursive processes attained values of the knowledge-flow variables and their induced socio-economic variables {X(θ)} are subjected to evaluation by means of the social wellbeing criterion function and the processes continued through new ranges of {θ, X(θ)}-values.

The two parts of the social wellbeing simulation problem are represented below:

1. *Social Action: From Shura to Market*

This takes place by means of the episteme of unity of knowledge, which is a matter of preference guidance by Polity:

Lower case symbols (x_s) denote the logarithmic form of the upper case variables (X_s). Hence for expression (.) we have the log-linear transform,

$$\text{Simulate }_{\{\theta\}}\ w(\theta) = w(\theta, \mathbf{X}(\theta)) = \Sigma_{s=1}^{n}\ b_s(\theta).x_s(\theta) \qquad (A2.2)$$

with respect to recursive relations,

$$x_s(\theta) = C_s + \Sigma_{j=1}^{n}\ a_j(\theta).x_j(\theta);\ j \neq s = 1,2,...,n \qquad (A2.3)$$

$s = 1,2,...,n;\ x_s(\theta)$ denotes all x-variables except the particular dependent one. C_s is the constant term for the specific sth recursive relation. $j = 1,2,...,n$ does no include the particular number s for the $x_s(\theta)$ variable.

2. *Social Response: From Market Transformation to Shura*

$$\theta + = C + a.\theta + \Sigma_{i=1}^{n}c_i.x_i(\theta) \qquad (A2.4)$$

$\theta+$ denotes forward recursive values of an existing value of θ as discoursed in the Shura and determined by the previously existing $\{\theta, X(\theta)\}$-values

Parts 1 and 2 are brought together by first recursively determining simulated X-values of expressions for given range of values of θ, say in the range $1 \leq \theta \leq 10$. The reconstruction of new values of θ is done by the expression

(A2.4). The methodology of development planning particularly uses targets of growth rates of the variables as shown.

The technical simulation result of the above-mentioned social wellbeing function taken in the log-linear form is given below:

$$\text{Simulate } \{\theta\} \, W(\theta) = \Sigma_{s=1}^{6} \, b_s(\theta).x_s(\theta) \qquad (A2.5)$$

$$\text{Subject to, } x_s(\theta) = C_s + \Sigma_{j=1}^{n} \, a_j(\theta).x_j(\theta) \qquad (A2.6)$$

$$s \neq j; \; s = 1,2,...,n$$

$$\theta+ = C + a.\theta + \Sigma_{i=1}^{n} c_i.x_i(\theta) \qquad (A2.7)$$

The implication of development planning is that given a state of knowledge it is possible to mobilize policy instruments toward market transformation and attainment of given rates of change in the socio-economic and policy variables indicated by g(.)'s. But new θ-values evolve out of recursive experience from polity-market interaction.

To simulate the system (A2.5) – (A2.7) we start by first estimating each of these equations structurally with the following data set:

θ-values	$x(\theta)$-vector values	$W(\theta,x(\theta))$-values
$\theta_1 \in (0,1)$	$x_1 = \{ x_{11} \quad x_{12} \; ...x_{1n}\}[\theta_1]$	$W_1(\theta_1,x_1(\theta_1)$
$\theta_2 \in (1,2)$	$x_2 = \{ x_{21} \quad x_{22} \; ...x_{2n}\}[\theta_2]$	$W_2(\theta_2,x_2(\theta_2)$
....	....	....
$\theta_m \in (m-1,m)$	$x_1 = \{ x_{m1} \quad x_{m2} \; ...x_{mn}\}[\theta_m]$	$W_m(\theta_m,x_m(\theta_m)$

The row variables are structurally estimated by means of the equations (A2.5)-(A2.7). The emergent paths of the wellbeing function and the socio-economic variables as induced by knowledge parameters are thus estimated. Period-wise expected as opposed to actual convergence in the $(\theta,x(\theta),W(\theta,x(\theta)))$-values is obtained at the process for $\theta = \theta_m$.

3. An Example of Simulation of the Social Wellbeing Index: Competency

The measure of Competency in the labour force/business environment is an example of the social wellbeing index with complementarities between the component variables of competency as the goal. A given level of knowledge-flow θ determined at an instance of progress of competency co-determines all the component variables. Thus, skill as a complementary component indicator with the other ones is denoted by $S(\theta)$. Likewise, Attitude as another component indicator is denoted by $A(\theta)$.

We define the Competency Wellbeing Criterion (C) in the general form by,

$$C = H.\theta^{\alpha} S(\theta)^{\beta}.A(\theta)^{\gamma} \qquad (A2.8)$$

In expression (A2.8) α, β, γ are elasticity coefficients indicating the percentage impact made by θ, $S(\theta)$, $A(\theta)$, respectively on the competency level C. H is a learning parameter that will shift the function (A2.8).

Note knowledge-flow θ is fundamental because of its relational epistemology that initiates the process of developing the competency concept as a complementary goal comprising the component indicators.

The complementary nature of the component indicators along with their circular causation (dynamic) relationships in the context of relational epistemology requires (A2.8) to be simulated subject to the feedback interrelationships between the three component variables. Hence, in the context of the general wellbeing simulation problem of (A2.5-A2.7) we have the following specific simulation problem for the competency model:

$$\text{Simulate}_{(\theta)} \ C = H \, \theta^\alpha S(\theta)^\beta A(\theta)^\gamma \qquad (A2.9)$$

$$\text{Subject to, } \theta = f_1(\theta-, S(\theta-), A(\theta-), C(\theta-)),$$

where (-) denotes previously recursive values of θ, the indicators and wellbeing C.

$$S = f_2(\theta, A(\theta), C(\theta))$$

$$A = f_3(\theta, S(\theta), C(\theta))$$

The system (A2.9) can be simulated recursively by circular causation feedback using appropriate causality methods of econometric analysis.

4. Savings as Withdrawal from Economic Growth, Spending as Injection into Economic Growth

This portion is reproduced in a section of Chapter 4 of this book. We argue here as there as follows:

Let disposable income after saving at time $t = 0$ be denoted by $Y_0(1-s)$, which increases to national income Y_1 at time $t = 1$. $Y_1 = Y_0(1-s)(1+g)$. Likewise, $Y_t = Y_0(1+g)^t (1-s)^t$.

Now consider, $\partial Y_t/\partial s = -tY_0.(1+g)^t(1-s)^{t-1} < 0$ (A2.10)

$$\partial Y_t/\partial g = tY_0.(1-s)^t(1+g)^{t-1} > 0 \quad (A2.11)$$

(A2.11) is true only due to the positive effect of g on Y_t but a change in Y_t is dampened by the negative effect of s.

The results (A2.10) and (A2.11) remain true over all periods of time and in the continuous sense. Besides, the argument that a higher volume of savings would grow into more resources for investment in the future contradicts the fact that at any moment of time that volume of savings is a resource withdrawal. That amount of potential resource could otherwise have been used to perpetuate economic growth and thereby development and social wellbeing. In the special case though, when continuously savings equals spending (as in the case of investment), resource mobilization takes over withdrawal over time and such spending becomes the engine of growth and development. In the Islamic economic case the additional Shari'ah criterion of appropriateness of spending outlets must also be maintained in order to achieve not simply growth or development but principally social wellbeing premised on the episteme of unity of knowledge (Tawhid).

CHAPTER 3

CORPORATE GOVERNANCE

The Fundamental Islamic Epistemology of Reference

The commencing premise of any kind of Islamic thinking and its influence on organization is the epistemological foundation of the oneness of God, Tawhid. This is functionally represented in socio-economic, management, political and the entire gamut of scientific relationships by a relational understanding of how the divine laws (Sunnat Allah) work in conjunction with the Guidance (Sunnah) of the Prophet Muhammad (Sunnat al-Rasul) in connection with the world-systems and the Hereafter. This causality between Allah, the World-System and the Akhira (the Hereafter) is cogently expressed by the feedback relationship:

From Tawhid in the Primordial Order of Reality to the World-Systems onto Akhira as the manifestation and equivalence of Tawhid (3.0)

The Tawhidi epistemological methodology was developed in Chapter 2. In this chapter we will apply that central methodology to the topic of corporate governance as an institutional theme.

What is Corporate Governance?

We commence with the two contrasting questions and their answers: What is Corporate Governance as conventionally understood? What is Corporate Governance in the Islamic perspective under the *Tawhidi* methodology of the oneness or unity of knowledge?

Corporate Governance has to do with those legal and organizational structures that look after the internal governance of a corporation. The implication here is that a corporation is an organization and hence an institution. It is thereby a bundle of contracts and rules under which it functions, is legitimated by legal decree and protected by the legal tenets of any government and state. The implications of such legal obligations and protection may be limited nationally or extended internationally under agreed upon globalization rules.

The latter case forms the extension of the legal statutes and conditions of property rights to the international venue by such governance policies as TRIPS (Trade Related Investment Property Rights), TRIMS (Trade Related Investment Measures), Surveillance and Dispute Settlement Mechanisms, environmental protection, antidumping, corporate transparency, corporate responsibility, equitable distribution of wealth and income, labor laws and many others. As the complexity of the business environment in relation to property rights issues expands the network of interrelationships among such diverse points of the complexity system grows. In the end there can hardly be anything left out of the extended meaning of corporate governance, though the discernible identification of such governance methods, tools, organization and acceptance go through an evolutionary learning process.

Corporate governance as a mainstream organizational concept can be derived from Arrow who writes (1974, p.224):

> An organization is a group of individuals seeking to achieve some common goals, or, in different language, to maximize an objective function. Each member has objectives of his own, in general not coincident with those of the organization. Each member also has some range of decisions to make within limits set partly by the environment

external to the organization and partly by the decision of members. Finally, some but not all observations about the workings of the organization and about the external world are communicated from one member to another.

The Objective Function of Corporate Governance

The very first objective of corporate governance is to define and attain an objective criterion by means of understanding the relations between critical variables supported by policies, programs and strategic coalitions. The last point leads to the determination of rules of actions, policies and strategies by means of institutional consensus and the exercise of proper instruments as required by the kind of corporation in action. Thus there are three stages involved in the determination of the groundwork of corporate governance. Firstly, there is the collective formulation of objective criteria. In view of the complex nature of networking in corporate governance there must inevitably be multiple objective criteria interlinked in some explainable way.

We define such an objective criterion function as,

$$W = W(\mathbf{x}, \mathbf{P}; \geq(\theta)) \tag{3.1}$$

$\mathbf{x} = \{x_1, x_2, x_3, ..., x_n\}$ denotes a vector of socio-economic variables between which interrelationships must be studied with respect to market and environing realities. For example, x_1 can denote price of good 1; x_2 as price of good 2; x_3 as the quantity of good 1; x_4 as the quantity of good 4. The relationships between these happen through the interaction between demand and supply of such goods in multimarkets (here two markets).

$\mathbf{P} = \{P_1, P_2, ..., P_m\}$ denotes the vector of policy variables and instruments. An example is of P_1 as competition policy, P_2 as corporate

transparency, P_3 as a management contract with labor on wages and job security, etc.

{≥} denotes strategic preferences of corporate members either in management hierarchy or in co-operative mechanism within team work. The latter kind of strategy is particularly to be found in Japanese firms (Kobayashi, 1988). An example is that in order to determine right multimarket market prices using the policies of corporate governance policies as mentioned above, the preferences of the corporate members would be different between competitive markets (the Taylor model of corporate governance) and co-operative strategies (Japanese case).

θ denotes a consensual value of discursive mechanism existing within the corporate organization either in its hierarchical form or co-operative form to establish the preference ≥. Hence we write ≥ as being functionally determined by (θ). That is ≥(θ), which is a key epistemological indicator in the organizational theory of the firm. The structure, and thereby the nature of corporate *inter*relationship in the specific firm, will be determined by the kind of behavioral preferences formed by the discursive mechanism. In a neoclassical firm competitive behavior will rule foremost. In the co-operative firm complementary relations between multimarkets and the organizational strategies will prevail. Herbert Simon referred to such an approach to decision making in a firm as 'satisficing' behavior. According to Simon (1952-53) there are three phases of decision making at the organizational level.

The first phase is the intelligence activity. This accounts for setting up the favorable conditions for decision-making. The second phase is the design activity. This accounts for searching, discovering and analyzing possible sets of ways and means of interacting with the design activity. The third phase called the choice

stage engages in selecting and implementing particular choices of actions that have been discovered and analyzed at the stage of design activity.

Simon's characterization of an organizational conception of the firm is more process-oriented than Arrow's. In Arrow's characterization there is a particular conception of preferences that reside with competing individuals somehow molded together to form the preference of the organization as a whole. Such a hierarchical preference formation then enters the criterion function of the organization. The maximization behavior along with the competing preferences of individual members makes such preferences those of self-centered individuals, whose individualistic preferences are then molded in ways unknown.

Such a molding is a lateral aggregation of individual preferences. In this case the method of preference aggregation turns out to be simply an analytical nicety of civil libertarianism (Bentham, 1789) rather than a process, explaining consensus. The assumption underlying this kind of preference aggregation is that every individual behaves alike and unanimously concedes to a uniquely dominating human preference (Harsanyi, 1955). Despite accepting an argument sometime premised on the capacity for happiness in utilitarian ethics, a convergence to such a unique human preference by the methodical rule of lateral aggregation raises the problem of idealism against cognizance of realism.

The second kind of convergence of preferences would be by hegemony of a dominant ruler. This is the kind of decision-making that takes place in any form of democracy where the will of a majority voter wields the power of convergence. The same kind of behavior when extended to international affairs would mean the reign of the will of a certain powerful group over the rest. In recent times such unilateral governance has been characterized by the will of the Government of the United States of America to wage war on Iraq with the support of the U.S. popular sentiment. In the economic scene the transnational companies have

governance over the command of resources and investments in the developing countries. Such a power is supported by the WTO TRIPS, TRIMS, capital accord in FDI movements and capital accounts liberalization to the detriment of national governments' sovereignty over capital market and capital flow regulations. The technological dominance of the industrialized nations over the submissive will of the developing ones marks the return of Eurocentricity in the globalization scene (Amin, 1989).

Selection of Corporate Strategies in the Social Wellbeing Criterion Function

Whether it is the maximization or satisficing nature of the criterion function the corporation selects its strategies and thus has a perspective of the relationships governing x along with P. Here too the behavioral factor in preference formation is centrally critical. If the preferences are of hedonism and methodological individualism governing individuals, institutions, organizational behavior and markets, then our earlier selection of the market variables for x_1, x_2, x_3, x_4 in multimarkets will show relationship between these markets by way of competition. Underlying this perspective of resource allocation between competing ends is the pervasive principle of mainstream economics. It stems from the neoclassical economic roots of the principle of marginal rate of substitution as the governing principle of competition linked with scarcity and both methodological individualism and independence between competing agents and alternatives. Corporations adopt this principle to govern over alternatives that they assume are faced by the fundamental pre-condition of scarce resources in economic production. The bundle of policies that they adopt, namely P_1, P_2, P_3, as mentioned earlier, is to intensify competition, to evade competition policy and exercise control over international resources by taking protection of the national catching-up development policies and the trade and capital-flow liberalization instruments of the WTO and the IMF.

The following kinds of relationships will apply between the socio-economic and policy variables that we expect in the two cases of Arrow's individualism and Simon's satisficing behavior of agency:

1. *Kenneth Arrow*:

$$x_i = f_i(x_i', P_j) \tag{3.2}$$

where x_i' denotes the x_i variable without the ith one;
$i = 1,2,3,4; j = 1,2,3$

In corporate governance a strategy to acquire oligopolistic control of market shares will cause x_i as price or quantity variable to be determined by the price and quantity based collusion approach (Martin, 1988). Expression (3.2) forms a system of equations.

P_j could then denote policy variables such as anti-trust law, competition policy and advertising. The anti-trust policy could be measured by the rate of change of copyright violation as a function of one business output in terms of another's. Competition policy could be measured by the rate of change of profits above a critical level as a function of one business output in terms another's. Advertising policy is measured by the expenditure in promoting sales, and is thereby a function of one business sales value relative to another's toward gaining market access.

In each of such relations we note that there is an intrinsic condition of trade-off, and hence marginal rate of substitution due to competition between the firms to gain market shares and market access. All strategies revolve around such a pre-condition. The overarching preference formation governing decision-making in the corporation is thus premised on the principle of marginal rate of substitution as a trade-off caused by the assumption of competition in the

oligopolistic model of corporate governance. Consequently, the causality between the variables and their relations in the system (3.2) would be based upon and reflect this trade-off and competing behavior.

2. *Herbert Simon*:

Now the system of expressions in (3.2) remain intact, except that the preference formation is institution driven rather than market driven on the assumption of marginal rate of substitution, thus trade-off and competition. The policy and strategy variables become more important in causing a pattern of the socio-economic variables to emerge.

In the organizational theory of the firm given by Simon (1952-53) there is an internal social process within the organization that links up with the socio-economic variables. Information about the market environment and strategies remain incomplete. Hence agents are not optimally rational as in the case of Arrow. Thus bounded rationality holds on agent-specific behavior in economic and policy choices.

Three kinds of interaction apply.

R1: intra-firm interaction $\rightarrow$ cohesion (C);

R2: C $\rightarrow$ Diversity of strategies and decision (D); $\}$ (3.3)

R3: D $\rightarrow$ C (recursive decision-making);

R4: C $\rightarrow$ I.

The continuity of R1$\rightarrow$R2$\rightarrow$R3$\rightarrow$R4   (3.4)

is based on the competition theory of the firm that remains linked to markets. Such a firm's behavior being premised on competition and trade-off, the recursive relations intra-organization build upon this assumed form of competing behavior of the firm and reinforces the same through policy prototypes.

Simon's organizational theory of the firm is simply an institutional enforcement of the process internal to itself that derives from and then enhances the neoclassical hypothesis of marginal rate of substitution as information evolve within a bounded rationality set of alternatives. Simon thus extends Arrow's organizational maximization problem to institutional preference behavior. Arrow's approach on the other hand remains devoid of prescriptions of policy. In this regard Whittaker (1987, p. 574) writes: "The most obvious point to make about Arrow's discussion of organizations ... is that it conveys merely a broad vision rather that a specific theory. The speculation is on the grand scale, with few clues as to how the general perspectives can be applied to concrete cases and issues, let alone the formulation of precise refutable hypothesis."

Feedback Loops in Decision-Making for Corporate Governance: the Environing Factors

The environing factors of corporate governance are of two kinds, socio-political and politico-economic. There are interactions between these, particularly in the light of Simon's organizational theory of the firm. They generate significant consequences. In other words, a corporation in the organizational theory of the firm should be seen as a social and economic organism.

In the socio-political case the corporation is to be seen as a socially responsible organism. Some of the reflective preference behavior of the corporation would be creating jobs, sustainable development and goodwill in sales. But to attain such goals the corporation needs to exist and grow as a

dominant supplier. The production levels and acquisition of market shares between these large and small enterprises have important consequences. The dominant supplier determines the residual supply and demand curves of the small enterprise outputs. Small enterprises are unable to recover the average cost of production that otherwise the large firms can face due to their economies of scale. Consequently, an adverse pricing situation arises. In this scenario the dominant corporate supplier manages to price its products down to the limiting pricing level. But for the small enterprises this would mean bankruptcy (Martin, 1988).

In the political economy of corporation as a social and economic organism in relation to the environing factors, an important issue to treat is sustainability. Transnational companies have been shown to be irresponsible adventurers and rent-seeking producers in the resource-rich hinterland of the developing world (Trainer, 2002;Tisdell, 2002). The East India Company of British India, the ALCAN in Canadian habitations of indigenous natives and its environmentally disastrous operations in Barbados aluminum deposits, are just a few examples of the giant transnational companies that have disparaged the cheap but critical world resources in the native lands and the developing world. Thus corporate governance means legal constraints, penalties and rewards, transparency and disclosures on the operations, revenues and expenditures. International anti-trust and competition policies are required to govern oligopolies, cartels, acquisitions and mergers.

In respect to the environing factors a recursive feedback relationship of the type shown on expressions (3.3) and (3.4) now requires active policy variables **P**. But since the organizational theory of the firm is linked with the rational theory of a profit-maximizing firm, a corporation finds its preference formation to be in the middle of contrasting forces between goodwill and profit-maximization. For instance profit-maximization objective has led to frequent downsizing and restructuring in corporations as they become large and powerful through mergers

and acquisitions. Collective decisions (C) are now significantly changed by the change in ownership, control and management of the new giant corporation. Consequently, the P-variables lose their social meaning for the sake of economic interests. Economic efficiency and distributive equity, technological change and employment creation, markets and environment and similar couples fall in the trade-off caused by market competition and the drive of management and shareholders to maximize the net asset worth of a corporation.

In the end, the recursive feedback under the governing preference formation causes increasing marginalization of the social objectives for gains in economic benefits for the corporations. The social policy variables lose their enhancing power while the economic ones increase. As economies today move into higher levels of privatization, market forces and globalization the process of social marginalization by corporations increases. The feedback earlier desired of P is ruptured between the social and economic sides.

Islamic Perspectives in Corporate Governance

The groundwork of all forms of corporate governance is premised on the nature of preference formation caused by the internal dynamics of organization and interactive decision-making within institutions, its relationship with the environing factors and continuity of such a relationship. If the preference formation is premised on methodological individualism and recursive methods that breeds on market forces then the Arrow-Simon type of corporate behavior is perpetuated.

The preference behavior $\geq$ is therefore premised on an epistemology carried by θ-values to yield an episteme of action and response shown by $\geq(\theta)$. $\geq(\theta)$ is then recursively formed by and in turn feedbacks upon (x,P)-variables.

In the Islamic theory of corporate governance the expressions (3.1) – (3.4) acquire the forms,

$$W(\geq(\theta)) = W(\mathbf{x}, \mathbf{P})[\geq(\theta)] \tag{3.5}$$

$$x_i(\geq(\theta)) = fi(\mathbf{x}_i', \mathbf{P}_j)\ [\geq(\theta)], \tag{3.6}$$

where $\mathbf{x}_i'(\geq(\theta))$ denotes the $\mathbf{x}_i(\geq(\theta))$ variable without the ith one.

$i = 1,2,3,4;\ j = 1,2,3.$

The induction of the variables and functions by $(\geq(\theta))$ has a deep import. Such a transformation is not mechanical. The transformation means that since $\mathbf{x}$ and $\mathbf{P}$ are both uniquely induced by $\geq(\theta)$, they will have complementary relations between them rather then marginal substitution relationship of a competition and scarcity based paradigm. Besides, the continuity of the feedback in the $\mathbf{x}$-$\mathbf{P}$ relations encompassing social and environing factors perpetuate such a complementary relationship. Because of the combination of the relations shown in expressions (3.1) and (3.4), interactions within and across organizations, markets and the organic environment lead to consensus that evolve in continuous cycles by their interactive, integrative (i.e. consensual) and evolutionary dynamics (IIE, see Chapters 1 and 2). A continuous knowledge-inducing process model as opposed to a maximization model of corporate governance by means of preference behavior is established.

Yet the organic Interactive, Integrative and Evolutionary Process (IIE-Process) is not automatically established if the corporations are left to sheer market forces or to sheer competing social and environing forces. The Islamic knowledge model of the most general type is premised on the epistemology of unity of knowledge as a relational order between systems. Between the Shari'ah-approved (according to the Islamic Law) possibilities of $(\mathbf{x}, \mathbf{P})[\theta]$ the relational order is one of pervasive complementarities across diverse ways of learning-by-

doing. Even between the good and bad (Shari'ah-opposed) opposites there is no pervasive marginal rate of substitution, but simply in the short run, as long as knowledge evolution process across the prevailing incomplete knowledge domain has progressed sufficiently to establish the possibility to replace the bad with a good or to discern the two conclusively. An example of this process is from the Qur'an (2:219-220) on how alcohol and gambling were progressively banished from the Muslim conduct of life and replaced by the virtue of spending in the good things of life: "They ask you concerning wine and gambling. Say: "In them is great sin, and some profit, for men; but the sin is greater than the profit." They ask you how much they are to spend; say: "What is beyond your need." Thus Allah makes clear to you His Signs: in order that you may consider – (their bearings) on this life and the Hereafter."

Thus, the Qur'anic organic characterization of reality is that all things have been made in pairs (Qur'an 51:49) – "And of everything We have created pairs, that you may remember (the Grace of Allah)." The pairing of the universe, which applies to both good things taken together and bad things taken together are separately paired bundles. The two mix only over a limited space of incomplete knowledge. But as the organic discourse towards unity of knowledge proceeds, this indetermination problem is removed and is further evolved to greater degree of certainty by truth recognizing the contrasting realties between truth and falsehood according to the Qur'anic law and the Sunnah. These two epistemological foundations together and combined with the discourse among the organizational entities of both institutional and every other relational domains of markets, society, science and environing factors, form the Islamic episteme of unity of knowledge.

In the introduction to this chapter we referred to the central simple but highly complex relationship in expressions (3.5) and (3.6). The knowledge of universal 'pairing' as the sure sign of complementary relations among diverse

things discovered by the IIE-process referred to above, is the derived meaning of unity of knowledge. It springs from the fundamental epistemology of Tawhid and relates to the World-System. Thereafter, through the continuous evolution of such an experience of organizing the world-system out of unity of knowledge we reach the end of reality in the Hereafter.

$\geq(\theta)$ is thus epistemologically determined in a general systems configuration by the pervasively knowledge-inducing behavior of preference formation and its dynamic evolution across unifying fields of interrelationships. The **x**-vector that is induced by $\geq(\theta)$ signifies the capacity and transformation of the market, institutional and socio-scientific orders to embrace the true reality of the unity of knowledge. The Qur'an refers to this true reality by the term Haqqa. The **P**-vector likewise is the set of policies, strategies and instruments that continuously simulate the realization of systemic unity of knowledge in IIE-process-oriented domains.

The medium of discourse through which the human mind interrelates with the Signs of Allah (Ayath Allah) is called the Shura. The Shura is here understood as the total organic process and medium of discovering unity of Tawhidi knowledge through system *inter*relationships. Thus the IIE-process emanates from the combination of specific stages in the knowledge formation circular causation model of unified reality (Choudhury, 1995). These stages are namely (1) The Tawhidi Epistemology; (2) The primal derivation of unity of knowledge from the Tawhidi Epistemology and then codified in the form of the Shari'ah and the Shari'ah rules (Ahkam as–Shari'ah) leading to the primal formation of $(\geq(\theta))$; (3) The discursive medium of the $(\mathbf{x},\mathbf{P})[\geq(\theta)]$ systemic interaction and integration followed by a simulation of $W(\mathbf{x},\mathbf{P})[\geq(\theta)]$; (4) The organic evolution and continuity of the derived system given by (3.5)-(3.6). These stages characterize the IIE-process. The latter is also referred to here as the Shuratic Process and is

derived from the generic title of the Qur'anic Chapter 42, Shura (Mutual Consultation), but in combination between the verses (Qur'an, 38 and 49-53).

Applying the Interactive, Integrative and Evolutionary Process of Tawhidi Unity of Knowledge to the Theory of Corporate Governance in Islamic Perspective

The very first perspective of Islamic methodology in socio-scientific systems, namely the Shuratic Process, forms the most profound institutional and organizational model of governance in general and corporate governance in particular. Since the Shuratic Process, equivalently the IIE-process, forms the totality of the sequences mentioned above, therefore, the complete functioning of the Islamic governance is also the totality of the Islamic episteme. According to Foucault (see Dreyfus & Rabinow, 1983, p.18) the concept of episteme is defined as follows:

> By episteme, we mean … the total set of relations that unite, at a given period, the discursive practices that give rise to epistemological figures, science, and possibly formalized systems … The episteme is not a form of knowledge (*connaissance*) or type of rationality which, crossing the boundaries of the most varied sciences, manifests the sovereign unity of a subject, a spirit, or a period: it is the totality of relations that can be discovered, for a given period, between the sciences when one analyses them at the level of discursive regularities.

Since the preference behavior $\geq(\theta)$ is the most important governing part of the epistemology, which is followed by the system (3.5)-(3.6), we must understand what is the role of the social wellbeing criterion function $W(\mathbf{x},\mathbf{P})[\geq(\theta)]$ in corporate governance. Thus what is the objective goal of corporate functions and its governance?

Since the IIE-process is aimed at leading into greater degree of unity of systemic knowledge according to the Tawhidi episteme, therefore, the social

wellbeing function becomes the criterion to evaluate the degree to which such unity of systemic knowledge has been attained. That unity of knowledge is firstly evaluated internal to the corporation by observing an ordinal level attained to the degree of consensus formed by process converging to the interactive preference formation ($\geq(\theta)$). Secondly, the social wellbeing function evaluates the degree to which unifying relationship has been attained between the **x** and **P** variables through the recursive feedback between the corporation and its environing factors. The social wellbeing objective criterion is thus subject to actions and responses in the IIE-process that leads to corrections, revision or even abandonment of a given process if it is felt among the participants of the Shura that a particular set of rules is not working and can be improved by its replacement with other instruments and analytical perspectives.

During the times of Caliph Umar (second Caliph of Islam) the Qur'anic injunction of Zakat (wealth tax) that can be paid to new Muslims to give them economic security, was cancelled. The argument was made that by then the Muslim Caliphate had become strong politically and economically. It was possible to meet the social security need of the new Muslims by other means. This revision was simply a short-run exigency of resource management by the Public Treasury (Bait al-Mal), not a permanent abandonment of the Qur'anic injunction of the disbursement of Zakat fund into its eight categories and by further analogy of such expenditure (Qur'an, 2:177). What remains absolutely immutable is the Tawhidi episteme and its implication of a knowledge-centered unification by means of diversity of (**x**,**P**) *inter*relations.

Principles and Instruments Governing Islamic Social and Economic Conduct

In the environing domain, governance is imparted by the knowledge induction of the menus of production, consumption and distribution of resources, income and wealth that reflect the following key principles (Choudhury, 1989):

1. Extension of the Tawhidi unity of knowledge through the IIE-process to the interacting environing factors. This unfolds the complexity, richness and diversity of the unifying process of learning systems according to the episteme of the Tawhidi unity of knowledge.

2. The principle of Justice as balance and equality.

3. The principle of productive engagement of resources in social and economic activities.

4. The principle of recursive interaction among the above stages to form intra- and inter- systemic complementarities as the 'pairing' feature of unity of divine knowledge exemplified in systemic interrelationships..

These principles are equally true with organizations and institutions in an economy that evolve toward an Islamic political economy.

The **P**-vector becomes centrally important in generating the recursive IIE-process feedback intra- and inter- governance systems. To bring about the kind of unity of systemic knowledge as explained above appropriate kinds of instruments used are,

1. Preference formation toward avoidance of waste (Israf) in consumption, production and distribution of all kinds of resources. This leads not only to

intertemporal ecological consciousness but also determines the kinds of
goods and the technology that would be determined by the resulting
development regimes.

2. One such kind of waste being the rate of interest (all kinds of term
   structures, real and nominal) as the cost of unused capital existing in the
   form of liquid savings, the same preference formation by discourse
   between a corporation and the Islamic political economy phases out
   interest rate regimes and causes spending to arise by resource mobilization
   rather than savings as withdrawal of resources.

3. Interest rate as a 'bad' is replaced by progressive Islamic transformation
   by co-operative instruments. These are fundamentally of two types –
   Mudarabah (profit-sharing under economic co-operation) and Musharakah
   (equity participation). Around these principal instruments other forms of
   financing and development co-operation instruments revolve, such as
   Murabaha (cost-plus pricing), foreign trade, rental, secondary instruments
   of unit trusts and financing indexes. Such co-operative instruments
   generate and survive on extensive participation in the economy and
   society wide sense. The progressive reduction of interest rate and its
   replacement by the co-operative financing and development instruments
   enhances the evolving participation at all levels. This causes productivity
   as well as equitable distribution of entitlement and formation of
   empowerment in society at large.

4. There is the social obligation of the corporation to pay Zakat on its
   retained earnings. The volume of Zakat raised and distributed has a
   positive functional relationship with the transformation process toward a
   participatory economy with progressive reduction of interest rates. The
   limits of Zakat as with Mudarabah and Musharakah and likewise the

phasing out of interest rates, should transcend national boundaries into international resource flows across the Muslim World (Ummah).

Waste is reduced, participation is extended by way of co-operation, and social and distributive justice, balance, equity, equality and social security are progressively enhanced in the Islamic political economy between the corporation and the environing factors. It is now logical to deduce that the kinds of development regimes that corporations work in and promote within the goal of Islamic transformation (Ummah) are those of *dynamic* (i.e. evolving) life-fulfilling needs. The technological change in this milieu of development too is of a similar type, appropriate and cost effective. The extension of participation, thereby risk sharing, product diversification and technological appropriateness and the causality with the development regimes of dynamic life fulfilling needs, causes the cost effectiveness and social appropriateness of such transformation. The corporations play a vital role in this transformation process by causality between itself and the environing factors.

We have now interconnected the unification process of knowledge derived from the Tawhidi episteme and as it establishes the Shari'ah, with the $(\mathbf{x},\mathbf{P})[\geq(\theta)]$ vectors and its continuous recursive actions and responses in and through $\mathbf{W}(\mathbf{x},\mathbf{P})[\geq(\theta)]$. Such a continuous knowledge-induction is secured through the discursive processes within the corporation and between itself and the environing factors.

Corporate Governance by External Policies

So far we have dwelled in the social objective criterion of the Islamic corporation within a vastly interactive, integrative and evolutionary world-system. The next issue is to examine the nature of property rights, legal tenets and governmental jurisdiction on the operations of the Islamic corporation. We will stay with our

earlier example of policies relating to anti-trust law, competition policy and disclosure and advertising.

Anti-Trust Law

In the Middle East textbooks for university and college students are provided free. This attracts a good deal of sale for book publishing magnates in the West. Of recent local book publishers, particularly in Pakistan, India and Malaysia have entered into contracts with principal publishers to jointly publish such books at low cost. Copyrights are thus sold to local publishers. With the expansion of such co-operative contracts between book-publishers the joint ventures could lead to the presence of local publishing capacity of high standards.

A Mudarabah and Musharakah type venture is thus put in place. The goal of cost-effective means of securing equity and the social purpose of education add to the appropriateness of producing and using such dynamic life-fulfilling needs. The costly implementation of anti-trust law is overcome by putting the value of risk, cost and profit sharing through co-operative book-publishing contracts. Once again we find that in marginalizing the competing behavior in markets between firms and their replacement by the co-operative mechanism, the Islamic form of preference formation reduces cost and risk while it increases participation in joint ventures.

We mentioned earlier that the policy variable governing anti-trust law is a function of the output of a firm that illegally uses without disclosure the output of other firms for seizing market shares. This is a direct result of competing behavior where the preferences and menus are formed by such behavior. Now if we change the functional relation to a co-operative arrangement in which each firm uses the output of all firms including its own to jointly produce and access markets, the generation of profits and its sharing by the participating firms in the joint venture

will automatically put into effect transparency and disclosure. This reduces the risk of predatory contested market behavior, for that is not to the interest of the co-operative venture. Once again we note that the costly implementation of transparency and disclosure mechanism by external agencies is reduced in the Islamic political economy by the presence of the co-operative preference behavior and its implementation through the network of participatory ventures approved under the Shari'ah.

The functional relations between firm-specific outputs are given by the system of equation system (3.5) and (3.6) but with a P-variable as antitrust policy now dropping out of the policy vector. It is then replaced by the legal contract of Mudarabah-Musharakah profit-cost-risk sharing ratios in accordance with the proportionate shareholding and equity participation agreements that partners hold in a joint venture.

Competition Policy

In a co-operative venture predatory pricing cannot occur, for joint outputs, revenues, profits, cost and risk of production and financing are mutually shared, and consequently, are disclosed and become transparent. The roles of a dominant producer are two in this case. Firstly, the expansion of shareholding by smaller firms causes lateral integration of inter-firm assets within a growing co-operative mechanism. Now the ownership of the dominant firm devolves to a number of shareholding enterprises. Dominance is now not particularly of interest to any particular co-operating firm. Secondly, a moderately large firm can exist for a limited time period because of natural monopoly (telecommunication, defense materials, health care, educational sector) prevailing during the transformation process into an effective market driven knowledge-induced Shari'ah system. In this case, subsidiary firms diversify to serve the output outlets of the large firm. Over time, as the relatively large production ownership diversifies over

shareholders, the economy experiences capital widening in both areas, namely, ownership diversification generated by shareholding and industrial (product) diversification by the growth of co-operating enterprises. Consequently, product and risk diversifications are jointly served by such a participatory transformation of the share economy.

Earlier we assigned a measure of competition policy to undue profit levels gained by particular businesses by practicing predatory pricing (limit pricing) at the expense of small firms. In the co-operative economic arrangement such a limit pricing is illogical for the sake of mutual benefit of participatory firms and the shareholders. Now in expressions (3.5) and (3.6) the corresponding competition policy variable drops out and is replaced by profit-sharing ratio or the profitability rate. These rates are determined as weighted averages of the individual ratios and rates by the Mudarabah, Musharakah resource participation either directly or through other instruments that revolve around Mudarabah and Musharakah. Such resource-sharing weights are attached to the profit-sharing ratios and the profitability rates in view of the importance that individual participants attach to the given ratios and rates in the light of the proportionate resource sharing that they undertake. Chapter 5 treats this topic in some depth.

Business Disclosure and Transparency

In the co-operative economic and financial systems there is no incentive or reason for withholding business disclosure and transparency. It is of mutual interest to look after common benefits to gain profit-shares there from. Thus the expensive external governance policy and institutional mechanism of overseeing disclosure and transparency are not only removed from the P-vector but also the political implication of unnecessary governance and subservience, such as to the WTO policies of TRIMS, TRIPS and surveillance factors, would be minimized with the progressive transformation toward an Islamic political economy.

The disclosure and transparency factors are equally nonexistent for the consumers as for participating firms, for in an Islamic political economy household members mobilize their financial resources into Mudarabah and Musharakah shares rather than build up liquid saving in banks. They become shareholders and stakeholders. Islamic banks operate on this front by linking the financial resources with the real economy and activate financial and development instruments that enable speedy resource mobilization to occur.

The absence of disclosure and transparency mechanism between firms and shareholders further reduces the social cost on all. Contrarily, such costs would otherwise be incurred by unnecessary governance policies. The controlling authority, as the international development finance and trade organizations, reap the benefits at the expense of national political sensitivity and economic freedom. The world money laundering policy now ambitiously taken up by banks and international development finance organizations have indiscriminately transmitted a large social cost to the grassroots charitable organizations just to promote self-centered ego of American interest and political control of the Muslim populace. Western governments are now blocking the payments of Zakat by the Western Muslims to the poor and needy in the developing and least developing countries.

Along with the cost and risk-diversifying nature of participatory transformation into the Islamic political economy an immediate benefit to corporations is the reduction of the problems of moral hazard, asymmetric information and adverse selection. The very factor of participation and common goals of shared benefits in the evaluation of the shareholders and inter-firm social wellbeing function marginalizes the importance of the above kinds of risk factors. In addition, the very strong feature of linking money and finance with real sectoral mobilization in Shari'ah-recommended outlets establishes the productivity of the economy within the general equilibrium ethico-economic

interrelationships that we have pointed out above in the case of Islamic political economy.

Advertising Cost and Segmented Market Strategy

It is well known that in a perfectly competitive market advertising is a redundant matter of market access and economic efficiency. In the Islamic political economy competition is replaced by co-operative sharing by participation. The reduction of risk exposure by a compound factor of the number of shareholder multiplied by the number of shares held by each increases the speed of diversifying risk to a low level. Accordingly, the average cost curve would decline in an asymptotic fashion. This reflects continuous learning by the evolution of discursive knowledge through the intra- and inter- corporation interaction with the environing factors. Consequently, an automatic built-in mechanism increasing the level of output is attained. Thereby, the need for advertising the products remains low. Advertising being a sales strategy of the so-called "imperfect" competition caused by monopolistic and oligopolistic producers and sellers becomes redundant in an economy that attains its high level of efficiency by the automatic effects of market driven stabilization of cost, risk and product diversity with increased shareholding and inter-firm participation in productive activity. All these are realizable by the speedy mobilization of financial and money resources. More on these issues are taken up in Chapter 5.

While aggressive advertising policy becomes redundant and morally contradictory in the Islamic political economy, the production and diffusion of useful information is a Shari'ah responsibility of all organizations. This involves inculcation of systemic unity of knowledge according to the Tawhidi precept and discursive behavior of participation in the Shuratic Process. Corporations in the Islamic political economy are required to establish this operative function as an important part of the human resource development program (Choudhury, 2001).

The nature of inter-sectoral and shareholder participation in Shari'ah-recommended productive activities causes diffusion of the knowledge of diverse products and their social and economic benefits. Such diffusion of knowledge as a cause and effect linked with interrelationships causes equal sharing of information. Such a reduction in the withholding of information makes advertising an unwanted strategic instrument.

Corporate Governance in a Dual Islamic Economy

The dual Islamic economy is an embedded one within the prevalent mainstream economic system in which economic competition, methodological individualism, moral hazard, information blockage and irresponsible behavior are rampant. What is the nature of corporate governance in such a case?

The answer is given by a segmented market approach. The Islamic organizations, markets, products, menus and strategies are promoted in specific markets and trade within national boundaries and internationally. Islamic banks undertake this task currently by entering into Islamic financing instruments for their specific clientele and selecting markets where interest rates are avoided by shareholding in Shari'ah-recommended outlets. The expansion of the Islamic corporations like Islamic banks and Takaful (Islamic Insurance) companies in segmented markets embedded in mainstream economies needs the power of the behavioral transformation of preferences in increasing awareness and practice of the participatory practices, as mentioned earlier in the IIE-process. This program requires extensive human resource development and knowledge induction at the community, national and international levels.

The hostile environment of competition by mainstream corporations and the impossibility of Islamic corporations to enter into strategic alliances in such other portfolios might first appear to limit the expansion of Islamic economic and

financial activity. This is not a proven fact. In Malaysia during the heyday of the economic and financial crisis, the Islamic portfolios remained stable. Currently, while interest rates remain low in the commercial banks and the stock markets are showing high volatility, there Islamic banks and investment companies are offering stable after-tax rates of return of approximately 7 per cent. This is a global picture with Islamic banks. Hence linkages across Islamic financial institutions are made possible in such a climate of financial stability and the prospect of gaining in total productive possibility by linking financial and money resources with the real economy.

With the growth of Islamic financial and economic institutions even within segmented markets it will become increasingly attractive to gain national support to promote the operations of such institutions. The automatic prevalence of transparency, business disclosure, absence of predatory competition and anti-trust consequences coupled with sustainable productive performance with social benefits will enhance trust. A national policy to recognize the special nature of Islamic corporations and financial institutions is absolutely necessary. While Islamic banking has been given a special status of recognition within the central bank of Indonesia, Sudan and Iran, this is still lacking in other Muslim countries.

Conclusion

We can now conclude this Chapter by answers to the two questions: What is an Islamic Corporation? How is it governed for operational effectiveness, accountability to shareholders and social responsibility?

An Islamic corporation is a legal entity of shareholders with principal and proportionate ownership of assets according to individual group equity and profit-sharing capabilities. Mudarabah and Musharakah contracts and other ones that revolve around these principal development-financing instruments establish the

legal validity of the corporation. Absolute ownership within an Islamic corporation is thus replaced by proportionate ownership according to participation and in view of the extensive co-operative linkages established.

The Islamic corporation has a prime role in the Islamization of the Ummah. Thereby, matters of participatory enterprise across the economy and shareholding nationally and internationally according to Shari'ah rules, become mandatory on the Islamic corporation. The built-in openness and transparent nature of the Islamic corporation in its business dealings with members and shareholders increases effectiveness in product and risk diversification and developing segmented markets of Islamic products. The driving force of complementary relations between economic efficiency, economic growth, technological change, capital, labor, social justice, equality, sustainability, stabilization and productive transformation by mobilizing financial resources into the real economy according to the Shari'ah rules, makes the Islamic corporation market driven within a social and responsible co-operative milieu. Above all, the continuous knowledge driven Shuratic Process of discourse, search, discovery and expansion of complementary possibilities forms the systemic application of the Tawhidi episteme in the case of corporate governance.

With the ethical market driven nature of the Islamic corporation external governance of such an organization becomes increasingly redundant in an Islamizing political economy. The most critical governance of the Islamic corporation is its guidance toward the formation of behavioral preferences premised on the Tawhidi systemic meaning of unity of knowledge by relational complementarities and linkages. The human resource development effects are grounded on such a perspective of unifying interrelationship between the Islamic corporation and its internal and external environing factors.

TECHNICAL APPENDIX TO CHAPTER 3

COMPARATIVE SCHEMA OF CORPORATE GOVERNANCE

The schema of corporate governance in the comparative conventional and Islamic perspectives is shown in Figure A3.1.

Figure A3.1: Comparative Views of Corporate Governance: Islam and the Other Perspective

Non-Islamic Perspective   Islamic Perspective

Rationalism and Rationality as the Episteme   Tawhid as the Episteme
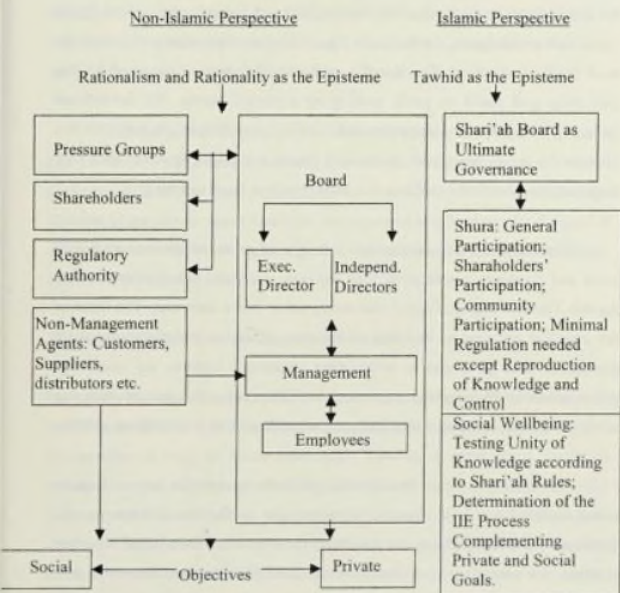
Conventional Perspectives of Corporate Governance

The conventional perspectives of corporate governance are summarized as follows: In the non-Islamic case, the epistemology of the institutional governance process in connection with the socio-economic objectives is based on the rationality assumption of maximization of shareholders' wealth. The entire tenor of corporate governance is driven by and oriented towards this singular private goal. The principal-agent problem looks after this sole objective from the level of the Board down to the level of the shareholders and clientele and upward by the same kind of reinforcing feedback. In Figure A3.1 the two-sided arrows indicate such feedback relations. The Board's preference behavior is governed by this rationality goal based on profit seeking by economic agents. All institutional policies both within the corporation and outside it are designed to authorize this ultimate rationality based goal. Action and response in corporate governance flow from within and with the market venue in reference to this foremost goal.

Consequently, the neoclassical principle of gross substitution with only weak and short-run complementarities between social and private interests can prevail. This is a methodological conclusion rather than a statement. The result of the marginal substitution postulate of resource allocation underlying corporate governance thus gives rise to information asymmetry between the social and private domains. Thereby what otherwise should be the broader goal of wellbeing of the community are not substantively addressed (Lazonick & O'Sullivan, 2000).

The human resource development, preference formation and consequent management of the entire organization undertaken by the Board, Management, Employees and Shareholders are driven by the above-mentioned kind objective criterion in a competing environment. Consequently, the market forces are self-organized according to this kind of preferences and organizational preference

behavior. Markets are not benign domains of exchange. Rather, they represent exchanges of social contracts that are developed within institutions and carried through all organisms including markets by the preferences of the agents involved in institutional decision-making.

Circular feedback does exist in reinforcing the rationality and wealth-maximization preference behavior of the principal-agent relationship in corporate governance. But such a feedback is weak in the social context. Consequently, the conscious shareholders or the community clientele can get marginalized in their social preferences. Thereby, shareholders fail to become effective stakeholders to play a socially active role in terms of maximization of the shareholders' wealth by the principal-agent methodology of corporate governance.

With the above features for the conventional case, corporate governance can be defined as a decision-making mechanism to improve a firm's future performance over the past performance by intensifying the interrelationships between shareholders, board members, management and directors for the goal of maximization of the firm's value as measured by the value of the shareholders' stock of wealth (Jensen, 1993).

The Islamic Perspectives of Corporate Mutuality

The above-mentioned approaches to corporate governance are substantively altered in the Islamic case. The Rationality episteme is opposed and is replaced by the episteme of unity of divine knowledge, Tawhid, in terms of its functional perspective working through the Shari'ah. This premise is used to develop guiding rules of participation and sharing in the cost, profit and risk of joint ventures. Participation across inter-systems and intra-system being the ultimate structure of the Mudarabah-Musharakah and similar co-operative ventures, the

shareholders become active participants in the decision-making process. Thus, they turn out to be conscious stakeholders besides being dormant shareholders.

The ultimate objective criterion of the Shari'ah Board and the constituent Shuras of groups of participants is to simulate the social wellbeing function for social welfare along with individual wellbeing rather than maximize shareholders' wealth alone. This is not a mere altruistic goal. It is driven by the logic of mutual interest. In this way, the social goal becomes strongly complemented with the private goal, reflecting in this way the working of the principle of complementarities between the diverse $(\mathbf{x},\mathbf{P})[\theta]$ variables, as explained in the text of this chapter with regard to the IIE-process or the Shuratic Process. The circular feedback causation relationship as in the IIE-process of the Shuratic Process is thus a strong case of corporate mutuality rather than unwanted costly corporate governance in the Islamic case.

CHAPTER 4

THE QUESTION OF LIQUIDITY

Background on Bonds, Shares, Money and Liquidity

The question of liquidity has to do with the ease and speed at which financial papers can be converted across the counter into liquid asset. Central banks use open-market operations to buy back bonds and thus create an equivalent quantity of money. On the other hand, the liquidity proportion between bonds and money held is determined by the central bank's policy to stabilize the economy from inflation, exchange rate volatility and debt financing of public projects. Such a proportion between holding bonds and money is also used to strike a balance between fiscal and monetary policies pursuing the trade-off goals of taxation and unemployment (Kenen, 1985). The power of monetary and fiscal policies as stabilization instruments fade away if the liquidity is based on the convertibility of short term bonds across the financial counter. Such sales of short-term bonds based on speculation between bonds of variable maturity and between holding cash and bonds, generate volatility in the stock market, which the monetary and fiscal policies cannot stabilize because of the movements in the short run interest rates. In recent times it is the short run interest rates that have caused the speculative bubble of the world capital market turbulences and caused a build up of portfolio savings that increased the short-run liquidity of these instruments by their capability to be converted with ease and speed.

It now remains to be questioned whether the ease and speed of converting financial papers into liquidity is altogether an advisable process for the goal of economic stabilization. Contrarily, if the liquidity is to be controlled by means of altering the relationship between demand and supply of bonds and the demand and supply of money, then one has to link money either with long-term bonds or common stocks and shares.

Term Structure of Liquidity

In the case of long-term bonds the money-liquidity problem is not altogether solved, for the long-term interest rate can be understood as the equivalent of a term structure of short-term interest rates. This means that a long-term bond raises its interest-based income by revolving around short-term rates to maintain the liquidity needs of the long-term project.

If bonds are replaced by common stocks or shares the money-bond equilibrium relationship changes. That is because the volume of common stocks or shares held is a function of the rate of return, r, which has a positive relationship to the price of the common stock or share, that is to the amount of investment in these. On the other hand, the rate of interest, i, is inversely related to the price of bond. Besides, r and i move oppositely. Now if r increases relatively to i, share prices (i.e. investment) increase more than bond prices. Money supply increases corresponding to a lower interest rate. But at the same time, relatively lower bond prices are expected to cause a buoyant bond market. Hence there is contradiction in the simultaneous existence of more money and more bonds. Contrarily, the active share market could absorb the increased quantity of money. Thereby bonds are liquidated into money and thereby converted into shares. The relative increase in the (r/i) ratio transforms the economy from a liquidity-prone one into a money-share linkage form.

The function for liquidity or money in cash-balances, L, is now given by,

$$L = L(r/i, B, S_h) \qquad (4.1)$$

With, $dL/d(r/i) = \partial L/\partial(r/i) + (\partial L/\partial B).(dB/d(r/i)) + (\partial L/\partial S_h).(dS_h/d(r/i))$ (4.2)

The signs of the right-hand side terms are individually positive for the following reasons:

$\partial L/\partial(r/i) > 0$, for more bonds are cashed off as i is lower than r and vice-versa.

$(\partial L/\partial B) < 0$, for liquidity and bondholding move oppositely.

$dB/d(r/i) < 0$, for bond prices tend upwards as i declines relatively to r.

Thus, $(\partial L/\partial B).(dB/d(r/i)) > 0$.

$(\partial L/\partial S_h) > 0$ for bond liquidity is converted into shares when r/i increases.

$dS_h/d(r/i) > 0$, for shareholding increases with r/i increasing.

Hence the net result of all such movements is to make $dL/d(r/i) > 0$ over all the movements between bonds and shares markets as shown here.

The Interrelated Movement Between Bond Liquidity, Money and Shares

We now note the interrelated movements of resources in the three markets in Figure 4.1.

(1) In the monetary sector, L increases with (r/i) decreasing. (2) In the bonds market, quantity of bonds decrease as prices increase with a relative decline in I leading to a convertibility of bonds into L. (3) Pure shares market prospers by attracting the liquidity obtained from converted bonds and their redirection into the higher rate-earning shares market. 'ss' denotes the locus of equilibriums in the shares market.
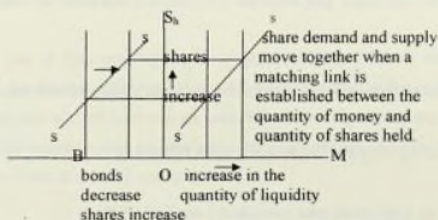
Figure 4.1: Movements Between Bond Liquidity and Shares

The positive linkage between money and common stocks or shares and the negative relationship between shares and bonds, and between liquidity and bonds establish a very important message on the money and real economy linkage. The relations here point out that shares form the financial medium to mobilize money into the real economy and bonds like savings withhold the money circulation from the real economy. In the conventional capital market shares and bonds are hybrid.

In the Islamic case resource mobilization of both the financial and productive types, as recommended by the Shari'ah, establishes the linkage between the money and real economy. This is the surest way of phasing out the regime of interest rates and replacing it by the profit-loss sharing rate in a participatory economic and social framework of economic co-operation.

Likewise, the phasing out of interest rates establishes the regimes of entitlement and empowerment for all by mobilizing resources at all levels of the economy and society and bringing the small and large entrepreneurs into a social bond. In the development sense dynamic life-fulfilling regimes of goods and

services are promoted. Appropriate technological change in the life-fulfilling regimes that connects assumes an endogenous ethical process interlinking markets and institutions. Economic stabilization is characterized by prices stabilization in accordance with the dynamic life-fulfilling goods and services. Risk and cost diversification are linked with production diversity and increasing shareholding participation along with stakeholding in the enterprises.

Sustainability of Transformation in the Islamic Money-Real Economy Linkage

Sustainability is seen as the result of the continuity of the unitary linkages along the following chain of causality. For the definitions of the symbols see Chapters 1 and 2. The italics within brackets point out the epistemological derivation on the subject matter from the Qur'an.

[Tawhidi epistemology of unity of knowledge, $\Omega \rightarrow S] \rightarrow$ (4.3)

{Principle of complementarity between money and real economy across diversity of productive and wellbeing activities as derived from the worldview of unified relations of the Qur'an}

[discourse mechanism to discover the rules of (4.3): moral and ethical attributes and socio-economic rules: determination of knowledge-flows from (4.3), {θ} followed by consensus on the rule of action from the discursive responses]→

(4.4)

{The Qur'anic medium of the Shura of the enterprises discussing how to devise asset-backed money in relation to a productive basket of goods or the Gold-backed Dinar as a sign of money-real economy unified linkage}

[determination of diverse possibilities through (4.4) for inducing ethicized institution-market transformation and learning there from: knowledge-induced

socio-economic relations, vector of knowledge-induced and unified socio-economic variables $\mathbf{X}(\theta)$] →   (4.5)

{The development of asset-backed monetary standard and organizing the monetary system according to the 100 per cent reserve requirement; developing the framework and application of the 100 per cent reserve requirement monetary system to a unified system of inter-sectoral productive activities; developing the financing instruments revolving around Mudarabah and Musharakah system of co-operative financing under profit-loss sharing as the mechanism to replace interest-based transactions}

[evaluation of the experience of (4.3) and (4.4), that is relating to the previous determination of $\theta, \mathbf{X}(\theta)$) to the principle of complementary relations across diversity as the sign of the Tawhidi unity of knowledge in the Islamic political economy] →   (4.6)

{The central goal of wellbeing as the Qur'anic criterion of unity of knowledge among the critical variables including growth, development and distribution to which all the organization and processes of the money-economy linkage must lend themselves to}

[evolution of the knowledge-inducing Shuratic Processes until Akhira, thus proving the closure of the Islamic process methodology of knowledge formation and its induction of the market-institution interaction and integration as the single unique praxis] →   (4.7)

{dynamics of the above-mentioned process in deriving higher degrees of knowledge of the Tawhidi praxis of unity in the money-real economy unification and applying it to dynamic life-fulfilling regimes of goods and services with money as the instrument in this behavioral, real economic, development and institutional transformation}

[continuity of (4.3)-(4.6) for newer phases of the institution-market interaction: Shuratic Processes *ad infinitum*: sustainability of the endogenous ethical transformation of market-institution realities by the Shuratic Processes]→ (4.8)

{sustainability of the above-mentioned processes to give impetus to an ummah wide transformation of the monetary system and its productive and wellbeing linkages with the real economy. This would lead to the common Islamic currency area and economic union}

See Chapters 1 and 2 for details on the process described by (4.3)-(4.8). For the particular case of money-real economy linkage as a practical example of the Tawhidi unity of knowledge in this system attained by means of the defining epistemology and the Shari'ah-recommended instruments, we have shown in italics against (4.3)-(4.8) only a few of the steps that are expected in the money-real economy linkage in the Islamic economic and financial transformation.

The Liquidity Question and the 100 per cent Reserve Requirement Monetary System

Our arguments working up to the expressions (4.1)-(4.2) have shown that money and shares of common stocks are directly linked, whereas bonds are oppositely linked with liquidity. This conclusion leads to the foundation of the Islamic theory of monetary and monetary policy with which the liquidity question is intimately linked (Choudhury, 2001b). The directly positive interrelationship between a share economy and the quantity of money held in cash-balances as liquidity implies a close money and real economy linkage. This is the idea of financial resource mobilization into productive resources to generate social wellbeing out of the close money-real economy unification. In this the principle of pervasive complementarities with diversity of possibilities applies as opposed to the marginal substitution principle exemplified by the trade-off between bonds and liquidity as cash-balances.

Furthermore, savings in the macroeconomic sense as opposed to the productive activity of resource mobilization now becomes a withdrawal from economic activity and a leakage. All kinds of savings are included in such withdrawal. Personal saving is a withdrawal from potential consumption in the Shari'ah-recommended outlets. Business saving is a withdrawal on potential Shari'ah-recommended investment. Public saving is a deterrent to the market transformation of the economies under the guidance of the Shari'ah. This statement is extended to the open economy with international trade.

The argument made here is that the national income net of household and capital consumption, with government being included in this activity, leaves a net national income that can be mobilized by the economic agents through financial and investment institutions. Such a resource mobilization is carried out by means of Shari'ah-recommended development financing instruments. Thus holding of Mudarabah, Musharakah and similar instruments involves an immediate circulation of the financial resources into the share economy to support real economic activities. Such kinds of certificates reveal a rate of return out of Shari'ah-recommended productive activities.

Saving on the other hand, denotes a purchase of paper money as a commoditized good with a price paid on it for holding money as commodity. As long as this money stays in the liquid form the financial return paid for holding it is the rate of interest. This is a continuous episode of withdrawal from potential resource mobilization (spending) as long as savings are diverted into the holding of money as commodity with its price of interest. The constancy, variability and different kinds of interest rates do not alter this argument of the fundamental difference between saving and resource mobilization as opposite productive activities.

The result of a competing conflict between liquidity and shares as a complementary group on the one side and bonds and saving as another complementary group on the other side, is to segment the markets into two competing sub-markets. These segmented markets are the financial, monetary and goods markets on the side of the complementary relationship between liquidity and shares and productive activity. On the other side, there is the market for bonds and savings in financial papers. Like all markets we have competing prices here that form the relative price r/i, which was used in the expressions (4.1) and (4.2) and Figure 4.1.

The Problem of Characterizing the Production Menu Between Goods and Financial Papers

If we are to accept and use the above arguments in the General Flows of Good and Services we obtain quite a conflicting picture on the productive flows. The contentious issue is that in contested and segmented markets between financial papers appearing from the side of saving with a rate of interest and of productive assets appearing from the side of the real economy, there is only one clear definition of the production menu. That is, the use of productive factors only generates productive output. On the other hand, there is no discernible production menu for the 'bundle' of financial papers that exist alone in competing and segmented markets of their own. The story is the same as the unproductive menus of the service sector where no production menu can be defined. This problem of inadmissible productivity indicator in the financial sector is reversed though when the financial papers are linked with the liquidity situation and the real economy. This happens in two ways as mentioned earlier: Convert the bonds into liquidity and change them with shares, and convert saving into resource mobilization at every point of time. Thereby, continuous and pervasively systemic complementary interrelationships are established and newer possibilities developed with the evolution of the systemic unity of knowledge.

In the dichotomous segmented markets of saving and resource mobilization the problem of well defining the production menu spills over into the factor markets and affects the definition of productivity. In the absence of a well-defined production function in the market for financial paper with reduced linkage with the real economy, we do not have a well-defined derived demand for relevant factors of production. Consequently, there is no well-defined productivity indicator.

So we may ask, how does the IT (Information Technology) sector measure its output, factors and productivity? This is done by dichotomizing the flow of revenues of the IT between the real economy and the capital market. Productivity in the first part has remained steady, whereas the second part has been adversely affected by volatility in the over-invested IT sector searching for financial returns in the absence of a productive link. This phenomenon in fact caused the speculative bubble that crashed the IT financial sector. The result was worldwide layoff of workers in the unproductive area of the IT sector. We note here that the total production menu between the productive and financial sectors of the IT industry being undefined, such a hybrid production menu could not reveal the true productive indicator of the IT industry.

Flaw in the Time-Dependent Saving-Equal-to-Investment Argument

Why do we say that saving is a perpetual withdrawal although it is argued that savings convert into investment and spending *in course of time*? The fact of the matter is that saving like spending occurs at each and every moment of time in the onward life of the economy. In this context we formalize as follows:

Let Y_0 denote GDP at time $t = 0,1,2,\ldots$; s_t denote saving ratio at time $t = 0,1,2,\ldots$; g denote a constant growth rate of GDP at time $t = 0,1,2,\ldots$

Disposable income after saving at time $t = 0$ is $Y_0(1-s)$, which increases to national income Y_1 at time $t = 1$. $Y_1 = Y_0(1-s)(1+g)$. Likewise, $Y_t = Y_0.(1+g)^t (1-s)^t$.

Now consider, $\partial Y_t/\partial s = -tY_0.(1+g)^t(1-s)^{t-1} < 0$ \hfill (4.9)

$$\partial Y_t/\partial g = tY_0.(1-s)^t(1+g)^{t-1} > 0 \hspace{1cm} (4.10)$$

only due to the positive effect of g but dampened by the negative effect of s.

The results (4.9) and (4.10) remain true irrespective of a moment of time and in the continuous sense. Besides, the argument that a higher volume of savings would grow into more resources for investment in the future contradicts the fact that at any moment of time that volume of savings is a resource withdrawal. That amount of potential resource could otherwise have been used to perpetuate economic growth and thereby development and social wellbeing.

One needs to understand here how the epistemological groundwork of the spending versus saving paradigm has been derived in the above case. This might appear to be implausible in the face of the worldwide acceptance that savings promotes economic growth via capital formation and that interest rate is thereby a good thing for economic growth in the long run through its influence on the growth of resources raised by savings. Development finance institutions around the world have been flagging this recommendation.

Islamic banks do not understand the conceptual difference between the concepts of savings and resource mobilization (spending). When they mobilize their funds around certain secondary instruments such as LIBOR (London Interbank Borrowing Rates) and government bonds, the religious approvals (Fatwas) have misled them in the wrong directions. Besides, economic textbooks

that are all centered in the study and application of Riba (interest of all kinds), argue that high volumes of spending brings about inflationary regimes. Yet against all these non-Islamic and current Muslim beliefs is the injunction of the Qur'an on trade against interest. There is *not a single verse* in the Qur'an that promotes saving in the sense we understand it in macroeconomics. 'Islamic economists' argue that verses of the Qur'an calling for spending in moderation and forbid waste (Israf) are indication of the savings postulate. Yet these verses have nothing to do with saving in the macroeconomic sense. Rather, they point out the attributes of balanced behavior that must form the preferences underlying spending and use of resources in responsible ways without causing waste. Such preferences are inculcated out of the knowledge and discursive approach in the construction of regimes of dynamic life-fulfilling goods and services according to the model of plenty, felicity and human ecology in the Qur'an.

Such guidance forms the goal of a moderate and conserving society living according to the Shari'ah. After all, why would one save and what would be the incentive to save in the face of spending in moderation? If the Islamic answer to this question is assigned to the role of rates of returns based on profitability and productivity enjoyed from the good things of life (Shari'ah-recommended) then there must be direct link between such resources and the real economy. This is our definition of resource mobilization. Thus, if we assign dual and conflicting roles to money as savings and spending as resource mobilization, then the rate in savings must be the rate of interest.

Some Islamic scholars would like to equate the Qur'anic story of Prophet Yusuf who interpreted a dream in which seven fat cows were devoured by seven lean ones and seven green ears of corn and seven withered ones (Qur'an, 12:46), with the act of saving. Though this narration is taking stock of unforeseen eventuality to wade off a stricken future, there is no mention of financial valuation

of a futures trade in terms of the harvest of the seven years of abundance that were saved for seven years of famine to follow. There was no accumulation involved in this stock taking based on future prices of the hoarded grains. Thus the issue of financial saving future speculative gain is not invoked in this theme of stocktaking of fungible. Rather, this concept of hoarding equates with the Qur'anic precept that forbids consumption in waste (Israf). The same principle was practiced by the Prophet Nuh (Noah), who saved pairs of species for their future productive function multiplying into many after the great flood (Qur'an. 23:27).

The difference between the concepts and consequences of resource mobilization and savings in relation to the direct linkage between liquidity and the real economy cannot be understood without the epistemological reference to the Qur'an. On this matter it is the Qur'an that enlightens our reasoning process first by a textual reference to the complementary nature of the universe, the paired universe of the Qur'an (36:36)). The Qur'an then presents the human ecology and felicitous model of wellbeing. It then offers the medium and instruments of participation, discourse and sustainability of such a paired universe of life-fulfilling things (oppositely the corrupting things of life).

Such a discursive medium is the Shuratic Process. It remains embryonic in all things with or without the conscious human presence. The principle of complementarities across diversity in the paired universe along with its dynamic evolution (Khalq in-Jadid) in the framework of systemic pairing, which we referred to as the Tawhidi systemic understanding of unity of knowledge, is the most powerful foundation of the Islamic worldview. This becomes the functional praxis for all forms of explanation. On the theme of liquidity, money, finance and the real economy it is this epistemological groundwork that establishes the principle of pervasive complementarities across diversity of sectors, instruments and development possibilities for human felicity.

This last point is to set the Islamic criterion function as the social wellbeing function for the simulation of degrees of progressive unity of knowledge attained during the process of knowledge-induction and evolution in the context of a monetary union with the real economy. Economic growth is a component of this wellbeing perspective, not a goal in itself. It is no wonder that after several decades of promoting growth for its sake (Mishan, 1977) the World Bank and the UNDP are now thinking about poverty-centered growth, entitlement and empowerment, participation and multidimensional criterion function of 'wellbeing' (UNDP, 1997, 1998, 1999, 2000).

The Substantive Nature of the Difference in Concepts Between Resource Mobilization and Saving

Is the difference between the concepts of resource mobilization and saving as used by the Islamic banks and development financial institutions a substantive one or mere semantic? As mentioned above the substantive nature of the difference between the two concepts have led to the flotation of liquid funds of Muslim savers in LIBOR (London Interbank Borrowing Rates) markets and government bonds. The argument made is that governments do not raise interest incomes from the sale of government bonds and they return a profit share to the public at large from the productive use of the bond money. Likewise, it is argued that the London Interbank Borrowing Rates do not speculate in the market venue to directly affect interest transactions.

There can be nothing farther away from these flaws in Islamic economic thinking. Governments raise funds by issuing bonds to finance deficit budgets and mega projects. The result is deficit financing, which leads governments to borrow nationally and internationally and get into both unproductive, unaccountable projects and national debt servicing. Governments in the Middle East who have

taken up this mode of financing their deficits by government bonds are found to be autocratic role players in political, social and economic matters.

Contrarily, such governments should have become participants and allowed for individual participation in the guided market venue according to the Shari'ah. Interbank loans determine the flow of funds between nations. Such funds pursue short-term capital bulge (over a trillion dollars a day!) caused by short-term interest rates in such capital movements. The volatile movement of short-term liquidity around the world today is a major cause of financial instability, of market dominance and unproductive spending in financial papers. The worldwide boom of portfolio investments has not helped the developing economies in general and the Muslim countries in particular to spread that financial resource over the grassroots and to bring about poverty alleviation, entitlement and empowerment through market-friendly productive participation by the poor and deprived. Social wellbeing and human development have not been achieved by such speculative short-term portfolio investments.

The liquidity position of the Muslim countries has increased tremendously by the increase on the liability side. Savings in the form of government deficit financing and portfolio investments in the form of short-term capital could not be used in stemming the heightened tide of debt burden and debt servicing. We have argued above that the role of liquidity in Islamic development financing is to link it up with the real economy and to bring about extensive complementarities across diversity between markets, opportunities, agents and institutions at all levels. This is the sure way of spreading and diversifying cost of production and risk across product diversity and number of shareholders for realizing a productive and participatory social and economic transformation.

Methodological Flaws in the Study of Liquidity, Money, Finance and the Real Economy in Islamic Economics

In the end, we have a sorry prevalent state yet a better prospect to point toward. The deepening entrenchment of Islamic economics as an intellectual study in neoclassical economic theory caused an intellectual poverty in Islamic thinking. The Islamic banks and development financing institutions either relied on such an Islamic economic perspective or were oblivious of the necessary policy-theoretic understanding of the relationship between liquidity, money, finance and the real economy for purposes of attaining the simulative goal of social wellbeing in a progressive transformation of the Ummah, the conscious world nation of Islam. Neither of these intellectual and practical developments projects a movement of the Muslim World today toward Ummatic transformation (Choudhury, 1998).

Yet after such flawed developments for the last sixty years or so among 'Islamic economists', the positive picture is that the legacy of the Islamic world-system pronounced by the Islamic epistemologists of the Islamic scholastic era are with us today. We also find in the world of deep scholarship the reign of neoclassicism is fading away (Sen, 1987;Myrdal, 1989), being unable to answer the complex problems of interaction, global ethics and sustainability in which humankind has entered. (Commission on Global Governance, 1995). Staniland (1985) refers to this reversal toward the study of interactive phenomena, as exemplified in this chapter by the pairing nature of interaction between liquidity, money, finance and the real economy for the purpose and being guided by the unity of systemic knowledge that is organized by the simulative conception of social wellbeing.

The 100 Per Cent Reserve Requirement Monetary System

This message of the circular causation linkages is also the substance of the 100 per cent reserve requirement monetary system. Islamic banks can take stock of such developments to configure a segmented private sector that can be governed by such a model of the asset-backed money.

What is the 100 per cent reserve requirement monetary system? In the conventional banking mechanism of multiple credit creation the total deposit, D of a commercial bank is divided up between a statutory reserve, R that must be held in the central bank and an excess reserve, ER that is loaned out between commercial banks and customers according to the demand for liquidity.

Hence,

$$D = R + ER \qquad (4.11)$$

Now with r denoting the reserve ratio set by the central bank we obtain,

$$R = r.D; \ ER = (1-r).D. \qquad (4.12)$$

Thereby, the new money, dM in the economy created by multiple credit creation through the flow of interbank loanable capital is given by dM = dD/r. This simple expression shows that new money is compounded by interbank deposits and is inversely related to the statutory reserve ratio. The statutory reserve ratio can be taken as a control variable used by the central bank in the creation and contraction of money supply. Consequently, the control of r affects the excess reserve ratio and thus the power of commercial banks in creating money.

In the above case, since the concept of monetary aggregate is seen in the midst of money demand and supply caused by the central bank and commercial banks and thus bring about the general demand for money, therefore, a money market must exist. Such a market transaction in money as a commodity determines the price of money, which is the rate of interest, i. Consequently, we write the relation, $M = M(i,Y)$, Y being the output, real or nominal, and hence, M and i are real or nominal accordingly. The same argument can be made for deposits, D. That is, $D = D(i,Y)$.

We have explained above that resource mobilization and savings move oppositely because of the disparate and opposing nature of the rate of productive return, r, and the rate of interest, i. The latter comprises all kinds of rates, since we can convert any rate to its term structure and real rates are determined by nominal rates and the rate of inflation.

In the language of 100 per cent reserve requirement monetary system Y prevails over i. The implication then is that the function of money is understood simply in terms of its relation with Y in the expression, $M = M(Y)$. This expression can be further extended by including a rate of return, $r(.)$ on Y as a function of its price p, say $r(p)$. Now, $M = M(Y,r(p))$. r and p are themselves interactively paired across diverse markets and projects, that is these are individually combined into indexes.

The Nature of Money in the 100 Per cent Reserve Requirement Monetary System

What is the function of D in expressions (4.11) and (4.12) in the 100 per cent reserve requirement case? D is simply M itself. Consequently, in the multiple credit creation multiplier, $r = 1$. Commercial banks now lose their function to create money independently through the interbank flow of excess reserves. The

central bank holds the stock of money to provide to commercial banks in response to the need for M to finance Y, which reflects real economic activities. Such a matching between money and the real economy makes money a financing medium for generating Y. Such an instrumentation of money is generated by a stock and flow of currency instead of by paper money and promissory notes, which play the central role in the interest-based fractional monetary system.

The concept of money as a store of intrinsic value has been removed from what it is in the case of paper money to its transformation into currency for financing the real economy. The real value of money now is reflected in r(p), which is positively related with Y in the sense of steady-state economic change. But r(p) is caused by real economic transactions. Thus money is generated and contracted according to demand and supply relations in the real economy. Monetary aggregates cease to have demand and supply relations, as would otherwise be the case in money market. Money thus ceases to be a medium of exchange in the money market. It simply reflects the value of real economic transactions. The stock of money is then equal to the value of total spending in the economy-wide sense.

We have so far shown the relationship of money to real economic transactions. We must next understand the reverse causation from real transactions to new money. This is a matter of economic growth and asset valuation. Since r(p) is now seen to drive economic transactions causing steady change in Y, real assets increase in value along with Y. Consequently, more money is needed to assign that increased asset value. The central bank produces and provides fresh stock of currency, M' to match the needs of increased valuation of real assets.

Formalizing the Money-Real Economy Relationship in the Epistemological Sense

According to the methodology of the IIE-process, equivalently the Shuratic Process, which were referred to in expressions (4.3)-(4.8) and in Chapters 1 and 2, the circular causation between money and real economic activity is expressed as, $M \rightarrow Y(r(p)) \rightarrow M' \rightarrow$ etc. The connector between these causal relations is the endogenous relationship between money and the real economy. This causality is further defined by the inner endogenous interrelations within the real economy and between the institutions of money and socio-economic development. Endogeneity is pervasive in this systemic framework. We refer to the pervasive systems of endogenous interrelationships as unification of knowledge of the economic, monetary and social systems (Choudhury, 1997).

Such a system of endogenous interrelationships is realized by means of appropriate financial instruments, not without them. They are instruments that promote the endogenous connection between money and the real economy. Thus the steady increases in r(p), and thereby in Y and M, replace the rate of interest. The financial instruments are therefore those that promote real economy participation and thereby replace interest rate transactions.

An immediate deduction from this kind of a function of the financial instruments and the endogenous money-economy interrelationships is that spending, which is resource mobilization in socially acceptable real outlets, replaces bank savings, which are inevitably driven by the rate of interest in relation to the monetary aggregates. In the usual terminology, transaction demand for money M1 is devoid of interest rate. The savings components of monetary aggregate M2, M3 and higher ones are functions of spectrums of long-term and short-term rates of interest distributed over financial portfolios (Friedman, 1987).

We have now derived further implications from our 100 per cent reserve requirement monetary system. The stock of currency held and provided by the central bank to commercial bank for performing its function relating to real economic activity is strictly that which circulates in the economy as M1. Hence this quantity of money as currency cannot be spread over the portfolio of financial assets with different rates of interest, as is the case with the equation of exchange in quantity theory of money. For this reason it is found that the quantity theory of money has not accepted the 100 per cent reserve requirement concept (Block, 1999).

The financial instruments of endogenous money-real economy interrelationship are participatory ones with socially acceptable meaning. The above-mentioned explanation equates all interest-based transactions with socially unacceptable outlets. Our explanation equates money with the value of spending in morally acceptable outlets that generate pervasive participation and wellbeing in the systems sense as the goal of resource mobilization. Such instruments are edicts derived from the episteme of unity of knowledge, which in turn is translated into world-systems by a unique understanding of the unity of knowledge between the human agents of participatory institutions and also in terms of the interactive relations between the human mind and the understanding of the interactive and integrative systemic functions of world-systems. Institutions and instruments thus combine together to develop and disseminate the unity of knowledge across all sub-systems of world-systems. One such sub-system endogenously linked with the other ones with which it interrelates is money-real economy dynamic.

In the light of the unitary linkages established between money and the real economy to bring about social wellbeing as explained by the steps (4.3)-(4.8) we formulate the following money-real economy model in the light of the Tawhidi worldview.

Simulate $_{\{\theta\}}$ W = $W(\theta, M(\theta), Y(\theta), r(p)[\theta], P(\theta))$ (4.13)

Subject to, $M(\theta) = f_1(\theta, Y(\theta), r(p)[\theta], P(\theta))$ (4.14)

$Y(\theta) = f_2(\theta, M(\theta), r(p)[\theta], P(\theta))$ (4.15)

$r(p)[\theta] = f_3(\theta, Y(\theta), M(\theta), P(\theta))$ (4.16)

$P(\theta) = f_4(\theta, Y(\theta), M(\theta), r(p)[\theta])$ (4.17)

$\theta_+ = f_5(\theta_-, Y(\theta_-), M(\theta_-), r(p)[\theta_-]$ (4.18)

$r(p)[\theta]$ means the θ-induction of the variables r and p.

$\{\theta_+\}$ denotes recursive knowledge-flows formed endogenously in relation to the past knowledge-flows $\{\theta_-\}$ and the corresponding knowledge-induced variables, as shown. The recursive interrelationships among the variables explain the circular causation feature of the IIE-processes. The momentarily limiting evolutionary equilibrium variables as indicated by

$$Z^* = \{W^*, M^*(\theta^*), Y^*(\theta^*), r^*(p^*)[\theta^*], P^*(\theta^*)\},$$

corresponding to consensual (integrative) knowledge-values $\{\theta^*\}$, evolve under the force of creative evolution. Simulated points are denoted by Z-values and the consequential W-values, as shown.

The mathematical functions denoted by f's and the wellbeing function can be taken in the product form, given the elasticity-coefficients for the respective variables. Such a choice would agree with the complementary and linked forms of the variables in the endogenous system.

Interrelationships between Central Bank and Commercial Banks in the 100 Per Cent Reserve Requirements Monetary System

Chart 4.1 explains the participatory interrelationships between the Central Bank and Commercial Banks to bring about money-real economy linkage. Arrows 1 and 2 denote the flow of the quantity of currency through the commercial bank and the central bank in response to real economic transactions. Arrow 3 denotes the interbank and other clientele needs of the real economy arising within a continuous need for quantities of currency to finance real economic activities. This amount of deposits belongs to the central bank whose currency stock it is. These deposits limit an excess production of additional currency stocks. However, suitable mechanisms can be developed between the central bank and the commercial bank to efficiently circulate the interbank and other deposits into real economic transactions as needed under the supervision by the central bank through networking systems. The arrow 4 shows this possibility. Other new currency flows needed for financing real economic activities are indicated by arrow 5.

The same mechanism exists in case of an excess demand for a quantity of money to finance real economic transactions. The central bank can produce additional currency and also use its commercial bank deposits to finance this excess demand. In this way, any excess demand is perpetually removed. Thus no price pressure can exist, which otherwise would be caused by a shortage or excess of liquidity.

Since arrows 3, 4 (hence 7,8) represent exact matching of demand with the quantity of money to finance such real economic activities, therefore, there cannot exist any excess demand or supply of money. Thereby, money market consequences on prices and real output do not exist. In other words, the growth of currency = growth of demand for real economic transactions = growth of output =

real rate of productive return. In an economy that moves according to the dynamic basic needs regimes of development there would be steady states for these various rates. Consequently, the rate of return $r(p)[\theta] = r(\theta, p(\theta))$ will stabilize.

This however requires active functioning of the two levels in the banking system, namely, the Shura organization and the co-operative venture relationship. Such relationships are instrumental in the knowledge formation of the system. Knowledge formation is measured by active policies, performance of co-operative instruments and discourse. All of these conditions are accounted for in terms of ordinal weights in the θ-values.

Chart 4.1: Institution-Market Interrelationships in the 100 Per Cent Reserve Requirement Monetary System: Central Bank, Commercial Bank (Shari'ah Bank) and the Real Economy

Central Bank: Produces and Manages Stock of Currency and Oversees the Money-Economy Relationship

Central bank produces currency stock = Dinar 100,000. Central bank maintains Dinar 100,000 level by producing residual stock of currency. The central bank can also produce stock in view of expected excess demand for the real economy.

Reserve ratio = 100 %

Central bank oversees the money-economy relations in view of economic development and social perspectives according to Shari'ah both for the closed and open economy. Hence, domestic and external sector stabilization is part of the overall goals of the central bank to guide the allocation of funds. To stabilize the external sector the central bank links exchange rate determination to productivity. Consequently, terms-of-trade and balance of payments in current and capital accounts are sustained. See below for formalization relating to these.

Shura Relationship

1	2	5	6
↑Demand	↑Deposits	→3 ↓Quantity of	↑Demand ≥
for Dinar	all receipts	↓4 currency for transacting Dinar 100,000
Dinar 50,000	in central bank	real economic activity	
		↓4 ↓5	↓7 ↓8

**Co-operative Venture Relationship between Commercial Bank
and Clientele in the Real Economy**

Commercial Bank	Needs Dinar 50,000	Needs Dinar 100,000
1 2	4 5	7 8
↑Demand ↑	↓Quantity ↓	↓Quantity↓
for Dinar 50,000	of money	of money
for real economic	in real economy	in real economy
activity	= Dinar 50,000	≥Dinar 100,000
Economy	Needs Dinar 50,000	Needs Dinar ≥100,000

The 100 per cent reserve requirement realizes stability and sustainability
of the economy in the midst of a dynamic life-fulfilling regime of development.
The otherwise growth-oriented and lifetime cycle of capital accumulation through
interest-based savings and economic growth are not the goals of the 100 per cent
reserve requirement monetary system. Such goals cannot, therefore, be pursued at
the Shura level.

Conversely, the wellbeing function based on dynamic life-fulfilling goods
and services becomes the criterion for reading sustainable stability and moral
worth through the money-real economy relationship. The inter-play between
stages of the institutional organization in view of market realities together
explains the circular causation model. The relational order is denoted by the
circular flows of arrows in Figure 4.2. It implies the principle of
complementarities with diversity.

Economic Productivity Relations in the 100 Per Cent Reserve Requirement System

We need to understand the productivity relation in the 100 per cent reserve requirement money-economy system. The usual definition of productivity is now understood in terms of the underlying knowledge-simulation in the 100 per cent reserve requirement system relating to discourses in various levels of the Shura and the co-operation between central bank, commercial bank and the real economic clientele.

Labor productivity is defined by, $\rho_L(\theta) = Y(\theta)/L(\theta)$, where L is a factor input (particularized to labor) in the production function that is now of the form, $Y(\theta) = F(L,K)[\theta]$, so that labor, L, is complementary with capital K through the knowledge variable θ that defines the interactive, integrative and dynamically evolutionary process describing all relations in the Islamic world-system. Total productivity is defined by $Y(\theta)$, this being distributed between labor and capital in a complementary way, so that there comes about increasing returns to scale in the production function. On a simplified basis we also note the following production relations (Choudhury, 1998):

$$\text{Total productivity, } Y = [\rho_L(\theta).L(\theta) + \rho_K(\theta).K(\theta)]/2. \tag{4.19}$$

The right-hand side of expression (4.19) is a simulated parameter in terms of a combination of institutional and market forces. Thus, $L(\theta)$ and $K(\theta)$ are complementary with respect to the simulation of θ-values in the 100 per cent reserve requirement sense. These and the aforementioned facts are important to keep in view by the central bank at the level of the Shura organization and by the commercial banks at the level of co-operative ventures between themselves and the clientele of the real economy.

In the end we note that in the 100 per cent reserve requirement monetary system, wherein the rate of growth currency money equals the rate of growth of output with prices and rates of return on assets remaining stable, the utilization of factors of production are also complementary in terms of the complementary relation between their productivities. This too is a goal in terms of human resource development and efficiency that needs to be kept in view by the central bank in its planning of the 100 per cent reserve requirement monetary system vis-à-vis money and the real economic interrelationship.

The Question of the Currency Numeraire

Money is defined in terms of a stable numeraire so as to value all spending in terms of such a stable currency base in the real economy. The search for such a stable currency establishes the definition of the currency numeraire as money in the 100 per cent reserve requirement monetary system.

In the history of bullions, gold has been found to be the most stable asset against which currency values can be pegged in the long run trend. This of course does not mean that gold has not experienced fluctuations in the commodity markets. But when such conditions prevailed they were marked by political designs, as in the case of monetizing the paper money away from gold in the U.S.A, when her stock of gold fell to a record low post-World War II and by making banks operate on promissory notes that lie behind the mechanism of bank interest (Carmacks & Still 1998). The rise of paper money and its speculative nature in the real economy thus caused gold as commodity to fluctuate in prices. These cases are exceptional ones with regard to the fluctuation of gold prices on a secular trend. Yet over the long haul gold price has remained stable.

Therefore, if we accept gold as the standard numeraire backing up a currency, say the Dinar, then the following mechanism emerges with respect to fixing a relationship between gold and the Dinar currency:

In Figure 4.2, let A denote the Central Bank; B denote the commercial bank; C denote the real economy driven by Shari'ah-determined basic needs.

A holds G units of gold, silver or similar stable 'basket' of metals as numeraire, very carefully selected – not copper coins that drove out gold during the Mamluks, not today's paper money (Allouche, 1994).

B transacts an amount of currency in terms of this gold numeraire to assign value to real transaction, X, in E. These are *dynamic* basic needs (substantive term, see Chapter 2). The assignment of the numeraire value to one unit of currency is done in terms of basic needs.

Thus, an amount of gold, G in A = value of certain numeraire basic needs (Choudhury, 1992). During the times of the Prophet Muhammad (SWA) this numeraire was set in terms of mustard, barley, dates etc. i.e. *mithqal, danaq* etc. (see Allouche 1994). Hence, if x-quantities of such basic needs are valued in the country as a whole the 'weight of the currency in gold' is equivalent to that.
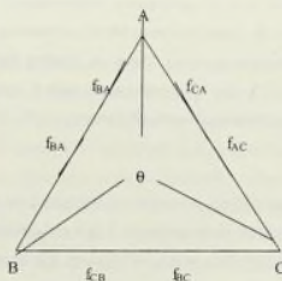
Figure 4. 2: Fixing gold-backed currency value in the 100 per cent reserve requirement system

In the light of the forgoing arguments we write,

1 currency value = (1 fractional unit of gold).(x-quantities of selected numeraire)
= x gold-numeraire in value.

For C-units of currency, C.x gold value in terms of the basic needs numeraire.

Now while G is held by A, C is produced at A and supplied to B according to the value of transaction in C (real economy). Say, X-quantities of real goods (Shari'ah approved) at exchange prices, p_X quantity of Islamic Dinar (just a term). Thereby, the currency value of $p_X.ID = [p_X$. (units of gold in terms of basic needs numeraire)], giving p_X/C units of currency or p_X/G as the exchange price in terms of gold as fractioned for currency determination in terms of the basic needs calculation.

Let, f_{ij} , $i,j = A,B,C$, $i \neq j$, denote the relational flows of money in reference to the Shuratic form of participatory interrelationship (thus double-arrow) that regenerates in the tripartite relationship for determining the quantity of money as currency to support spending. Money is therefore the value of total spending given by $(p_X/G).X$. This is the same as the units if currency multiplied by the quantity in transaction $= (C^*\text{-units of currency}) \times (X \text{ units of dynamic basic needs})$.

The social wellbeing effect is transmitted throughout the complementary interrelationships generated by these mappings. The social wellbeing function is denoted by, $W = W(X,M)[\theta]$. M is money as spending; θ is knowledge attained by discourse as shown by mappings among the agents and between M and S. Hence the derived relations exist between X and M, as SW is continuously simulated by θ-values.

A Case Study: Monetary Transformation in the Master Plan of Shari'ah Banking Development in Indonesia

Recently, Bank Indonesia has charted a plan for Shari'ah banking as part of its extensive plan on Islamizing the banking system. In one of its proposals in this respect Bank Indonesia has presented a master plan shown in Figure 4.3. We will critically evaluate this master plan in the light of the interactive, integrative and evolutionary (IIE) model of circular causation of unity of knowledge as explained earlier with respect to money-real economy interrelationship within the complex of relationship involving central bank, commercial bank and the real economy in 100 per cent reserve requirement monetary system.

The starting point in the proposed Master Plan of Bank Indonesia must be the paradigm/values segment as prescribed in Figure 4.3. In understanding this paradigm and its application to the 100 per cent reserve requirement monetary

system with Shari'ah background the role of human resource development must be a key factor.

The mission and vision in Figure 4.3 of Shari'ah banking in the context of 100 per cent reserve requirement monetary system would be to make the perspective of 100 per cent reserve requirement functional. That is, the relationship of the central bank with Shari'ah banking as commercial banking and the real economic relationship using the interactive, integrative and evolutionary (IIE) methodology must be central. Within this purview the Shuratic perspective between the central bank and the commercial bank (Shari'ah banking) and the co-operative relationship between such banks and the clientele of the real economy must be pursued as the 'vision and mission'.

The role of co-operative Shari'ah instruments in realizing the wellbeing objective criterion of the 100 per cent reserve requirement monetary system must always be kept in view. Operations, institutional monitoring, market transformation and resource allocation for developmental purposes must be pursued within this agenda of pervasive complementary relations invoking money and real economy linkages and avoiding all speculative and interest-denominated securities, bonds and transactions. Eradication of interest transactions will evolve as a natural consequence of the extensively complementary interrelations between money and the real economy using Islamic instruments of cooperation and linkages.

Figure 4.3: Critically Examining the Master Plan of Shari'ah Banking Development in Indonesia: Relating the 100 per cent Reserve Requirement Monetary System to the Shari'ah Banking Program of Bank Indonesia

Master Plan of Sharia Banking Development in Indonesia
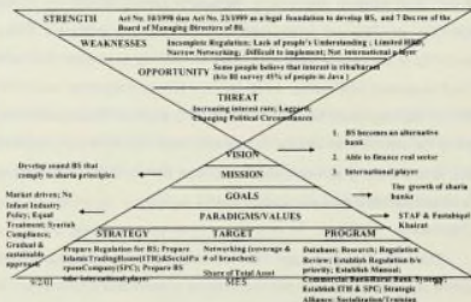
The next issues to investigate would be the strategies, programs and target in Figure 4.3. A strategy would be defined in the light of the 'vision and mission' of the market-institution interrelationships within the 100 per cent reserve requirement monetary system. Co-operative ventures and both primary and secondary financial instruments are to be activated in generating such projects that bring about wellbeing in the social economy as a whole. This means that profitability and output will be the result of financing such projects. The projects must seek extensive linkages across all economic sectors. Cost must be kept at a minimum through cost sharing. Risk of venture must be shared effectively among the participating members across diverse projects. Thus risk and product diversification would result from such a participatory economy-wide functioning of linkages within and between the financial and real sectoral activities.

Programs in Figure 4.3 of Shari'ah banking must thus be a combination of seeking shareholder property rights and profitability of assets. Yet these must be generated through linkages with the social economy. Important projects to link up with major income-earning projects would be poverty alleviation and development and upgrading of natural resources while providing inputs at low cost at the grassroots. In this respect an understanding of appropriate technology must be developed. Bank Indonesia should think of establishing a center that would look at such intermediate technological choices attainable through the process of linkages as envisioned within a 100 per cent reserve requirement monetary system.

Programs must extend from the national domain to segmented markets in the international Shari'ah banking and marketing environment. This will allow for effectiveness, safeguard and development of Islamic markets and development transformation. By the expansion of linked (segmented) markets in this way, risk and cost will be diversified by effective product diversification and expanded markets. The open market implications of the 100 per cent reserve requirement system now come in place. Since the linkages in the open economy case is internationally extended to the Muslim World, the center for developing intermediate technology for identifying and financing the operations of the Shari'ah banks could be internationally financed. In this regard, the Islamic Development Bank and the national banks of member Islamic countries will have to participate financially and actively.

The target in Figure 4.3 of the Shari'ah banking within the 100 per cent reserve requirement monetary system should be divided up between medium-term and long-term goals. Yet there must be a continuous transition and not a waiting time from one stage of development to the next. In the Islamic worldview of unity of knowledge that establishes the principle of complementarities, there cannot be

substitution between the short-term and long-term priorities. There are simply transitions.

The 100 per cent reserve requirement monetary system with the gold standard as asset backing can be implemented in the short and medium run in the private sector. In this case the central bank acts as a short run facilitator for banks to finance project co-operatively using Islamic financing instruments. The resulting Shari'ah-approved project-centered financing modes necessarily need the direct flow of currency. When resources are so mobilized, bank savings are converted into Shari'ah-approved spending. The flow of a quantity of currency money then represents the value of spending. Hence the currency flow is money in transactional circulation, which cannot have interest rate attached to it. Such a quantity of money is simply the function of the real output level in the knowledge-induced system.

In the 100 per cent reserve requirement monetary system interbank and interfirm gold-asset backing can be introduced by way of safeguarding the asset valuation of the joint ventures by the gold numeraire that can be held by the central bank for the Shari'ah banks against the joint venture projects and the goods and services in exchange. The resulting Dinar amounts flowing between banks and joint projects act as counter-trade in terms of the asset-valuation of projects and for goods and services in exchange.

In the short term, human resource development and project development for joint and participatory ventures are to be sought. The goal of wellbeing must always be evaluated for the effectiveness of Shari'ah banking. These short-term targets for participatory development should be taken up within the existing national development plans with the Shura-type linkages between Bank Indonesia, commercial banks (Shar'iah banks) and the real economy. In this

regard the existing Bank Acts of Bank Indonesia respecting Shari'ah banking shown in Figure 4.3 must be well articulated.

The long-term targets will be an evolution out of the short-term targets. In this respect the proposed institutional center for appropriate technology and the accentuated transformation into the 100 per cent reserve requirement monetary system must remain foremost. Developmental linkages and internationalizing of the Ummatic (world nation of Islam) transformation process must ensue. Along with this momentum of transformation new legislative acts and safeguards for the Shari'ah banking must arise. Long-term shares linked with short-term to medium-term shares in co-operative ventures must mark the momentum towards participatory change in the context of 100 per cent reserve requirement monetary system.

An important aspect of the long-term transformation of the Shari'ah banking within the 100 per cent reserve requirement system must be the establishment of the gold standard as the asset backing of currency money. This idea was explained in this chapter. Throughout all the aspects of development of the Shari'ah banking in the light of the 100 per cent reserve requirement monetary system there must exist the central role of human resource development and the institution-market interface.

The targets of stability and sustainability through the money-real economy-institution complementary linkages of the knowledge-induced 100 per cent reserve requirement with the gold standard as the asset backing must mean the constant evaluation of the wellbeing criterion, as it was explained in this chapter. Thus, price stability, economic productivity, rate of currency-money creation, its linkages with the real sectoral activities and the consequential

relationship of these to the terms-of-trade and the exchange rate levels will further arise. These must be institutionally governed and developmentally directed.

When the 'paradigmatic basis', 'vision', 'mission', 'strategies', 'programs' and 'targets' are set as explained above, the acceptance of the Shari'ah banking within the national development plan and by the superstructure of Bank Indonesia can form a welcome socio-economic organism. This acceptable premise is established by Shari'ah banks playing their significant role with effectual results at the social development level besides being profitable and diversifying risk and costs. The co-operating nature of the Shari'ah banks removes the element of competition and alienation that is to be found in the conventional financial and economic system. Wherever possible, Shari'ah banks should extend the co-operating mechanism across all banks and development projects. With these strategies for the Shari'ah banking the growing acceptance of Shari'ah banks within the market driven and institutional framework would reduce prejudices, weaknesses and threats for Shari'ah banks within the dynamics of the market driven and institutional forces.

Conclusion

The epistemological reference to the Tawhidi unity of knowledge explained by systemic unity in terms of the principle of complementarities across diversity must be kept in constant overview of the functioning of Islamic transformation. Within this broad field is the important function of money and liquidity. But money and liquidity now do not have independent functions of their own, as is otherwise pointed out in the case of the long run neutrality of money to real output. Now real monetary value does not change with price level and nominal monetary stock increasing at the same rate. Instead, in the Islamic economy money is a stock of currency produced by the central bank and transacted through

commercial banks for financing real economic activities. Money is thus equal to the value of total spending in the economy-wide sense. With this re-definition of money there is always an interdependent relationship between money and the level of economic activity. Spending does not cause inflationary movements because of the principles of avoidance of waste, the goals of dynamic regimes of life-fulfilling goods and services caused by a one-to-one relationship between money and the real economy. The rate of growth of the quantity of money is now equal to the rate of growth of spending, and thereby, output. Hence inflationary pressure cannot exist. The nature of dynamic regimes of life-fulfilling goods causes profits to remain stable. Thereby profit-push inflationary remains absent as well. The interest rate is made redundant in the financial sector by the paradigm of resource mobilization as opposed to savings. In the end, the Islamic theory of money and the real economy turns around the dynamics of complementary linkages with diversity in the learning processes (pairing) that come about.

Money, liquidity and asset valuation in the 100 per cent reserve requirement monetary system are further reinforced by asset backing, which we have treated as the gold standard. For the Muslim world a re-birth of the 100 per cent reserve requirement monetary system with asset backing by the gold numeraire is a revolutionary precept. It emanates from the Qur'an vis-à-vis the Qur'anic injunction on trade versus interest. It is in the books of the early Islamic writers on the worldly application of the Shari'ah (see Islahi on Ibn Taimiyyah, 1988). Today the theory and application of the 100 per cent reserve requirement monetary system would be the sure revolutionary way for returning the humankind back to its long-term sustainability and stability with extensive wellbeing.

CHAPTER 5

PROJECT FINANCE

In this chapter we will be discussing the following aspects of project financing and evaluation in comparative Islamic perspectives: There are specific points relating to the social and economic properties of a project that need to be kept in view by the financier not only from the profitability perspective of a privately owned project but also concerning its social profitability. The private and social cost components of project financing and the components of revenues generated from the nature of the project are to be treated within the financing formula in accordance with the social and economic awareness in writing up a project feasibility report and to be used in project evaluation and financing.

The question of average and marginal cost in the pricing of the products over time must be examined in comparative Islamic perspectives. The issue of the time value of money and its use in asset-valuation will be questioned and replaced by the appropriate Islamic asset-valuation model. In the light of the Tawhidi worldview of unity of systemic knowledge we will show that the only possibility to replace the interest-based transactions and valuation of assets is to link up money and finance with the real economy in the light of the Shari'ah-recommended outlets of investment and selection of projects. In the end, the above-mentioned topics will be collected together to lead to the project feasibility report in Islamic perspectives. We will delineate one such outline of feasibility report for Islamic project financing.

Time-Dependent Treatment of Costs and Benefits Linked with Project Financing

Project financing involves a structure of costs and benefits over time. An analytical problem arises as to how fixed and variable costs are understood and measured in the time-dependent case for perfect and imperfect competition. It is well known that fixed and variable costs are studied in the framework of a static relationship between cost and output. The effect of time is treated exogenously by assigning the technological effect on the cost and benefit curves to the time variable. We now take up this problem of understanding and measuring the time-dependent structure of fixed and variable costs associated with project evaluation.

Time-Dependent Evolution of Average Total Cost

The adjustment of average total cost and profits in the case of a firm in perfect competition is explained by the movement of short-run profits and average total cost from a state of positive economic profits to the long-run case of normal profits and minimum average total cost condition where marginal cost for pricing the product equals the minimum average total cost. Also the marginal revenue equals the marginal revenue of production.

Time has no role in the definition of the short-run and the long-run adjustments in this case. Instead, these concepts are linked with the scale of production whereby the factors of production and the technology of the firm can change sufficiently in order to adjust the costs and revenues into a stable state. In the short-run such factor adjustments in terms of their costs, pricing and use remain variable. Consequently, the upward rising marginal cost curve above the minimum of the average total cost curve, which is also the supply curve of output of the firm in perfect competition, reflects the effect of the variable factor costs leading to its final adjustment at the minimum point of the average total cost

curve in the long run. This is the point where the selling price of the output of the firm in perfect competition is determined in value equal to the long-run adjustment in the marginal cost of production. All of this adjustment is explained without invoking time in the process, except via a technological induction using the proxy of the time variable.

The problem of time in the marginal cost pricing and the determination of marginal revenue in perfect competition is equally unsettled in the case of imperfect competition with monopoly and monopolistic competition. The difference though is that normal profits do not appear in the case of monopoly as they appear in the case of the long-run state of adjustment in marginal and average total costs and revenues in perfect competition and the marginal revenue and marginal cost adjustment to equality in the case of monopolistic competition.

Therefore, what are the pricing and average and marginal sources of the net profits that we capitalize over time in the present-valuation formula? Since there is no relationship with the profit of the static case and the time-dependent case, the marginal values cannot prevail over time. Besides, the conception of evaluating a consequence (output, project, firm) over time is not based on the direct cost-output relationship as provided by the theory of pricing of output. Rather, prices are now assigned on an exogenously determined notion of risk given that a static conception of cost-profit has been applied in the static case at given points of time. While the pricing and output determination within a given point of time is assumed to be have a direct relationship with the average and marginal costs and revenues, the risk of such factors is an exogenous factor in the average and marginal cost and revenue relationship. Such a risk as an exogenous factor in the time-dependent pricing mechanism is measured as a price for postponing the receipt of net profit when the related price and output cannot be determined by the static case of the marginal cost and revenue equations. Risk

pricing of this kind is referred to as the time value of money. It appears as a discount factor in the present-valuation formula.

The inability of the static case of pricing the output for the time-dependent case and the exogenous nature of time-dependent measurement of risk have both deeply affected the correctness of the valuation approach in economic theory. This problem is of a deeply epistemological nature and has to be examined from the side of financing and real economy relations. Can the financial and real economy sectors be intimately unified in a causal way with resources flowing continuously between them or are they two segmented and dichotomous sectors of the economy with competing markets and different forms of returns?

The Nature of Opposite Movements of Resources in Real Economy and Financial Economy

Capital theory makes the assumption that the two markets are competing and dichotomous in nature with their own markets and hence pricing and output mechanisms (Robinson, 1961). The market risk is priced by the rate of interest on different modes of saving. These can be direct bank saving or bonds, coupons, capital market instruments with different maturities carrying a range of interest rates of the short and long run types. On the other hand, the real economic output is priced by exchange prices. Over time these two sides are intermingled, for the exogenous nature of risk reflects upon the uncertainty of prices and output and thus causes an exogenously risk-induced environment of cost and profitability. The end result is that the intermingling of the exogenous nature of risk with the real values makes the latter subjective in the evaluation model. In the standard valuation formulas there are thereby subjectively risky consequences rather than market realities. The time valuation of money as the discount rate in the present-valuation formula is used to evaluate such a subjective notion of intertemporal risk pricing.

What is the role of probability of occurrence of a state of risky pricing in the valuation model? To remember Keynes on this matter, he remarked that the greater part of the economic universe is governed by subjective probability (O'Donnell, 1989). Thereby, the probabilistic measures of risky consequences themselves belong to the universe of subjective probability. These in turn defy precise measurements and hence pricing and valuation by the standard methods of valuation. With such time-dependent probability measures future spending and resource mobilization variables like the market exchange also remain subjective in nature. We therefore conclude that the time-dependent problem of estimating market exchange by an exogenous risk factor is both a conceptual problem of combining exogenous risk with market exchange and of the structure of the valuation model based on such risky evaluation of market consequences. These two aspects of a single problem of asset valuation is an epistemological question that cannot be answered by capital theory in economics (Wicksell, 1934).

We can point out the indeterminacy problem of risk and return in the capitalization model of future cash flows by means of Figure 5.1. Here we denote the real sector by the spending variable (or resource mobilization), Sp, as a function of the rate of return r determined ex-post upon realization of the profitability of a project, production, venture etc. We denote the dichotomous financial sector by savings, Sv, as a function of interest rate i. We then interject the output variable upon these two dichotomous markets. In received economic theory the marginal substitution between these two competing alternatives allocates resources in the direction of that which is more attractive rather than one which is more productive. If i > r the regime of resource allocation will be towards savings and vice-versa. If short-run i is volatile because of financial speculation, there will be a random field shown by R around the points of marginal substitution between r and i. Thus in the end there is a determinate movement of the trajectory OT though the higher i values above r that would make the resource allocation trajectories move towards savings. But in this process the

risk caused by i will also cause risk of the spending variable by making it random and indeterminate. The consequential random field in the risk plane of cash-flows is shown by R'.

Risk Indeterminacy Problem in the Real and Financial Sectors

In Figure 5.1 certain problems need to be recognized interrelating R and R' beyond the fact that these are the results of indeterminacy of the risk factor related to market exchange. Rather, such risks arise due to speculation and subjectivity and then affect the market exchange in the same way. The additional points to note regarding the R-R' interrelationship are the following: In the dichotomous and segmented markets between real economy and financial economy an increase in debt financing by excess demand for funds to finance projects increases the financial reliance on bonds and fixed income securities. The attraction for holding these instruments is provided by the rate of interest. The higher the rate the more popular the saving like financial instruments. On the other side, the short-term interest movements cause indeterminacy of risk of the financial instruments that adversely affect the equity markets of shares and stocks and make the latter volatile just as the market for debt instruments remain volatile.

What is the effect of such financial volatility on the valuation of the firm in both the financial and real sectors of the segmented and competing markets? It is well known that the growth rate of the value of a firm in terms of equity-holders' retained earning and cash dividends is a compound function of the rates of change of retained earnings and earnings on common stock (equity). Now the capitalization of future discounted cash-flows from the stock issues require the growth rate of the firm's equity value to be lower than the rate of interest, which enters the discount factor of cash-flows. Since such discount rates arise from the random field R, the valuation of the firm's equity in R (cash-flows) also remains randomly indeterminate.

It is also well known that the optimal capital structure of the firm is explained by means of the expected utility function with expected risky returns (E(x)) and a measure of risk (Var(x)). Expected returns from risky portfolio are positively related to debt in the R and R' regions. The expected returns decrease as interest rates increase due to the inverse liquidity-real economy relationship. In the end, debt instruments adversely affect the equity instruments and thus the value of the firm's equity. The backward bending shape of the trajectory OT in Figure 5.1 explains this effect on resource allocation.

In the present valuation formula relating to cash flows the discount rate must be higher than the growth rate of earnings from dividend cash flows. That is, for a capitalized cash flow stream to be convergent so that the present value model can be meaningfully evaluated, the discount rates must be increasingly higher than the dividend rates from the stream of cash flows over time. Now permanently increasing debt cost, uncertainty and instability will arise, linking the regions R to R' in Figure 5.1.

Such negative movements between debt instruments and equity financing will finally extend to the economy as a whole through the adverse effects of the valuation of corporation earnings on dividend payoff to shareholders. This will be reflected in a permanently volatile stock market.

Random effects of Resource Allocation Due to
the Induction by the Rate of Interest

Random Field of Risky Cash-flows Induced
by the Short-Term Rates of Interest
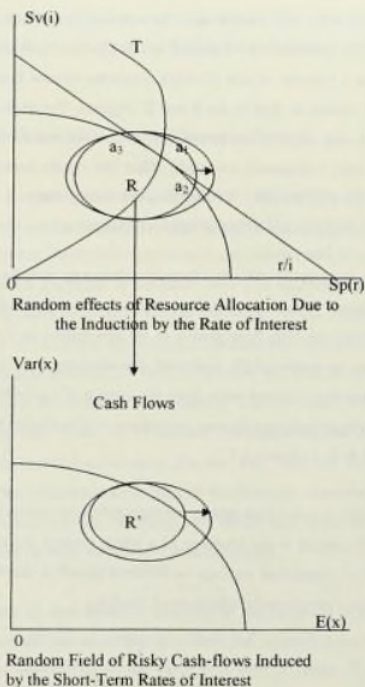
**Figure 5.1: Indeterminacy of the Spending and Savings Function
with Short-Term Rates of Interest**

The Islamic Financial and Economic Approach to Risk and Valuation

We conclude from the foregoing discussions that in segmented and competing dichotomous markets of real output and financial papers liquidity of financial instruments lead to money being held in high and speculative interest bearing instruments. Thereby, money as liquid asset on the one hand and real assets on the other hand, are made to become gross substitutes of each other. Now savings compete as withdrawal with spending as resource mobilization in productive activities. The volatility of interest rates and its risk indeterminacy effect on the real economy cause the asset valuation model of project financing unusable in reality. It becomes a mere quantitative nicety.

The methodological ineptness in project valuation of the present-value model and its prototypes such as the internal rate of return and terminal-value methods is also due to the inability to assign a correct measure of costs and benefits over time, as known in the static case of the average and marginal price theory of the firm.

These kinds of problems are circumvented in the Islamic valuation methodology by the theory of money and real economy linkage. The issue is of an epistemological nature on methodological grounds of the Tawhidi worldview. The end result of these epistemological and real issues of project valuation respecting cost, benefits and the appropriate way of estimating measured risk, leads to a new method of asset valuation. We will present this methodology and show by means of it how debt swapping can be done and how debt can be retired by equity.

Measurement of Cost and Benefit in the Static and Dynamic Case

On epistemological ground of the Tawhidi knowledge-centered worldview time loses its substantive meaning in valuation. Time is replaced by the primal function

of knowledge-flows in the light of the unity of knowledge in systems derived by discursion, pervasively relational worldview of the Qur'an spanning all things in the universe and by the development financing instruments that carry the unification relationship between institutions, financing and socio-economic variables and the economy. Time is now seen merely as the medium for recording the consequences of interaction and integration followed by knowledge-induced evolution across IIE-processes or equivalently the Shuratic Processes.

Formalism with Costs and Benefits in Time-Dependent Costs and Benefits of Project Financing and Valuation

We treat total cost of the following types:

Private direct cost of production is defined as the direct outlay of financial resources in employing labor, capital, land and other productive factors of production.

The knowledge induction of private direct cost comes about by means of sharing of such direct costs by co-operating producers of goods and services and related agents. The sharing is carried out under the principal development financing instruments of Mudarabah, Musharakah, Murabaha, foreign trade contracts and secondary financial activities revolving around the principal ones. Besides, in the joint production menus the productive factors between themselves and with owners are organized interactively to establish co-determination of choices of menus, technology and to share the cost of the producers as shareholders. The knowledge-flows caused by such an IIE-process are denoted as ordinal values of the variable $\{\theta\}$.

In the knowledge-induced interactive, integrative and evolutionary (IIE) processes relating to the sharing of cost and joint production menus with

productive co-determination of outcomes, the dynamic nature of cost exists always. The direct private cost function is now given by,

$$C(\theta, \mathbf{x}(\theta)) = \Sigma_{i-1}{}^{n} C_i(\theta, x_i(\theta)) = \Sigma_{i-1}{}^{n} (w+b+r+d)_i [\theta] . x_i(\theta) \qquad (5.1)$$

In expression (5.1) $C(\theta, \mathbf{x}(\theta))$ denotes the total cost as a function of the knowledge-flows measured in ordinal terms to reflect the degree of unity of knowledge or complementarities gained between the vector of variables $\mathbf{x}(\theta)$ in accordance with the Tawhidi worldview and its instruments and discourses developed within the IIE-process or the Shuratic Process.

$C_i(\theta, x_i(\theta))$ are the shares of total cost by each of the i-participants in the joint venture on co-operative basis if Mudarabah, Musharakah, Baye-Muajjal (mark-up) and other project financing instruments revolving around these principal ones.

$(w+b+r+d)_i [\theta]$ denotes the total payment to ith factor of production x_i, distributed as wages w, bonus b, retirement benefit r and dividends d. All of these are influenced by co-operative management of the productive venue between the factors as in the joint production function to be explained later in this chapter. Such a co-operative learning variable is the consensual knowledge-flow variable denoted by θ.

Private indirect cost is defined as transaction costs. Examples are transportation cost, insurance cost, property tax and environmental cost caused by unexpected and uncontrollable factors, such as sudden drought, famine and wars. Within private indirect cost we do not include those costs that can be shared by subsidiary production systems in the Islamic economy with joint production menus. In fact, with a sectoral extension of the co-operative management of joint

productions almost all of the private indirect cost can be comprised within a social perspective. When the social sharing of cost in a variant of expression (5.1) takes place in a privatization venue we have the nature of sharing to be market driven.

Social costs are spillover costs as consequences of the action of others or other environing factors. Such costs can be caused by diseconomies of scale when the production expansion in one firm or sector causes an increase in the cost of production in other related firms and sectors. Social costs in the financial markets are caused by unmeasured risk due to the actions of others and the environing unknowns. Examples here are moral hazard caused by free riding on interest free loans and soft loans; asymmetric information caused by withholding information in monopolistic and oligopolistic competition; adverse selection caused by asymmetric information on choices. These kinds of risks are minimized in the case of Islamic production due to extensive complementarities across diversely linked projects, sectors and production menus wherein disclosure and transparency become automatically governed without costly mechanisms as in mainstream ideas of corporate governance.

Since the total cost function can be expressed in terms of the joint product, therefore,

$$Q = \Pi_{i-1}{}^n Q_i(\theta, \mathbf{x}(\theta)) \tag{5.2}$$

Therefore, $\log Q = \Sigma \log Q_i(\theta, \mathbf{x}(\theta))$ \hfill (5.3)

As $C(\theta, \mathbf{x}(\theta)) = C(Q)$, there are two ways to express this:

$$C(\theta, \mathbf{x}(\theta)) = \Sigma_{i-1}{}^n C_i(Q_i(\theta, \mathbf{x}(\theta)), \text{ or} \tag{5.4}$$
$$= {}^n\sqrt{\Pi}\, C_i(Q_i(\theta, \mathbf{x}(\theta)) \tag{5.5}$$

Clearly, $(1/n) \sum_{i=1}^{n} C_i(Q_i(\theta,\mathbf{x}(\theta)) > \sqrt[n]{\Pi} \ C_i(Q_i(\theta,\mathbf{x}(\theta))$ (5.6)

We can now compute the average total cost $(ATC(\theta))$ in the following case of an Islamizing economy with $\theta \rightarrow \theta^*$ in the IIE process.

$$\text{Lim}[\theta \rightarrow \theta^*] \ \{ATC(\theta)\} = [\sum_{i=1}^{n} C_i(Q_i(\theta,\mathbf{x}(\theta))]/[Q = \Pi_{i=1}^{n} Q_i(\theta,\mathbf{x}(\theta))] \quad \text{or} \quad (5.7)$$

$$= \sqrt[n]{\Pi} \ C_i(Q_i(\theta,\mathbf{x}(\theta))/[Q = \Pi_{i=1}^{n} Q_i(\theta,\mathbf{x}(\theta))] \quad (5.8)$$

Expression (5.8) can be re-written as,

$$\text{Lim}[\theta \rightarrow \theta^*] \ \{ATC(\theta)\} = \sqrt[n]{\Pi_{i=1}^{n}}[C_i(Q_i(\theta,\mathbf{x}(\theta))/Q_i(\theta,\mathbf{x}(\theta))].[1/Q]$$

$$= \sqrt[n]{\Pi_{i=1}^{n}} \ [ATC_i(\theta)]/Q_i(\theta,\mathbf{x}(\theta))] \quad (5.9)$$

Expression (5.9) means that the $ATC(\theta)$ for the joint production menu experiences a continuously downwards shift with the growth of the joint output. This phenomenon is shown in Figure 5.2 by the shifts A_1, A_2 from the position A.
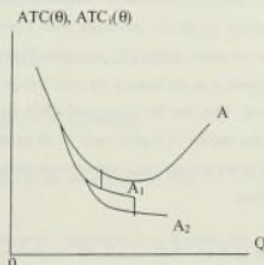
Figure 5.2: Downward shifting ATC(Q) due to continuous learning along the joint production menu $Q = \Pi_{i=1}^{n} Q(\theta,\mathbf{x}(\theta))$.

Joint Production Function as the Interactively Processes of Production Occurring in Pairs
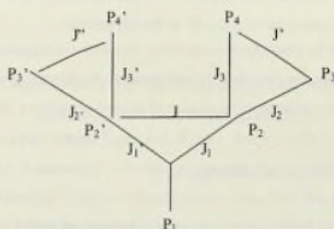
Figure 5.3: Joint Production Menus Linked to Multiple Processes as the Islamic Perspective in Project Financing

P_1's are production processes that give rise to other processes of similar type from a given production linked with each of the processes. Thus J's denote the branches of the production menus. Continuous technical and organizational pairing between the processes causes such evolutions from any particular production level into multiple production processes. Such a pairing of processes is the result of the circular causation of the IIE processes. Project financing in the Islamic economic framework must be looking for such linkage possibilities called joint production functions. They are the cause and effect for diversification of products and risks and the sharing of project costs of all types. The end result is the continuous lowering of the average total cost of production including all kinds of costs as mentioned above.

From expressions (5.7) and (5.8) we note by comparison that,

ATC(linear independent case of production menus and costs] = $[TC(Q)=\Sigma_i TC_i]/[Q=\Sigma_i Q_i]$ (5.10)

$$= {}^{n}\sqrt{\Pi_{i=1}}{}^{n} \ [ATC_i(\theta)]/Q_i(\theta, \mathbf{x}(\theta))] = ATC(\theta) \ \text{(case of joint production}$$

function and shared cost], $\hspace{8cm}$ (5.11)

$ATC_i(\theta)]/Q_i(\theta, \mathbf{x}(\theta))$ continues on to experience downward shifts due to the progressive increase in the joint production menu Q with the gains in the learning parameter, as $\lim[\theta \rightarrow \theta^*]$.

The Measurement of Financial Returns in Project Financing

Like cost and risk, profits are shared in the Islamic joint production and joint venture schemes. When investment, financing risk and costs are shared by partners according to the financing instruments of Mudarabah, Musharakah, Murabaha and secondary financing instruments revolving around these principal ones, profits are raised by sharing between partners who are spread over sectors and projects. The profit function like the cost function is now appropriately a geometrical mean of the product of the individual sectoral and project-specific profit functions in relation to the joint process-specific outputs.

Hence, the joint profit function takes the form,

$$\pi(Q) = {}^{n}\sqrt{\Pi_{i=1}}{}^{n}\pi_i(Q_i),\hspace{4cm}(5.12)$$

with Q as joint production given by expression (5.2).

Consequently, the profit sharing ratio ρ_n is given by,

$$\rho_n = \pi_n(Q_n)/\pi(Q) = \pi_n(Q_n)/[{}^{n}\sqrt{\Pi_{i=1}}{}^{n}\pi_i(Q_i)]\hspace{2cm}(5.13)$$

In the Islamic production, cost and risk sharing environment with joint production menu and risk and production the profit sharing ratio must be equal to the cost-sharing ratio.

Let the cost-sharing ratio for the nth firm be,

$$c_n = C_n(Q_n)/C(Q) = C_n(Q_n)/[^n\sqrt{\Pi_{i-1}}^{n-1}C_i(Q_i)] \qquad (5.14)$$

Since, $\rho_n = c_n$, therefore,

$$\pi_n(Q_n)/[^n\sqrt{\Pi_{i-1}}^n\pi_i(Q_i)] = C_n(Q_n)/[^n\sqrt{\Pi_{i-1}}^{n-1}C_i(Q_i)]. \qquad (5.15)$$

That is, $\pi_n(Q_n)/C_n(Q_n) = [^n\sqrt{\Pi_{i-1}}^n\{\pi_i(Q_i)/C_i(Q_i)\}]$. $\qquad (5.16)$

From expression (5.16) we obtain,

$$g(\lambda_n) = (1/n)\Sigma_{i-1}^{n-1}g(\lambda_i), \qquad (5.17)$$
$$\text{where } \lambda_j = \pi_j(Q_i)/C_j(Q_i), j = 1,2,...,n.$$

Since this result is true for all firms, therefore, no firm enjoys an undue average profit related cost over another. This is the feature of the continuously discursive nature of Islamic financing contracts revolving around Mudarabah and Musharakah. Such a discursive nature of the contracts can be gained by means of the knowledge induction along the evolution of the dynamic regimes of life-fulfilling goods and services that characterize the Islamic political economy. This result again is a derivation from the Tawhidi epistemological premise.

Using the Joint Production Method in Project Valuation by the Overlapping Generations Valuation Model

Every process point P_i in Figure 5.3 can be seen as the point of linkage and discourse between the socio-economic variables and their relations and the institutional policy variables. This experience enables the interactive, integrative and evolutionary (IIE) processes to be realized. Then circularly recursive interrelationships emerge. The net result of these *inter*relationships and their further evolution is caused by the simulation of $\{\theta, x_i(\theta)\}$-values through the evolutionary values of W, which now is taken as the overlapping generations valuation model shown below. The knowledge-induced cash flows over time (t) are shown in Figure 5.4

$$-I_0 \rightarrow A_1(\theta_1, x_1(\theta_1)) \rightarrow A_2(\theta_2, x_2(\theta_2)) \rightarrow \ldots\ldots\ldots \rightarrow A_m(\theta_m, x_m(\theta_m)).$$

Overlapping generations asset valuation points
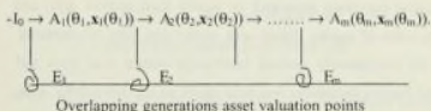
Figure 5.4: Recursively Generated Knowledge-Induced Cash Flows in the Overlapping Generations Valuation Model

At the time periods, t_1, t_2, ..., t_m there are the corresponding recursive interrelations between the $(\theta, x(\theta))$-variables in the sense of knowledge-induced simulations. This method is explained below.

The recursive relations are shown by E_1, E_2, ..., E_m. Clearly now, an infinite-term compounding is not applicable, because only finite-term decision-making is possible in the Shuratic Process.

$$x_t{}'(\theta_t) = f(\theta_{t-1}, x_t(\theta_{t-1})). \tag{5.18}$$

Here $x_t'(\theta_t)$ denotes the vector of all variables except the one that becomes the dependent variable at a period of time in the simulation system of recursive *inter*relations.

$$\theta'_t = g(\theta_{t-1}, x_t(\theta_t)),$$ (5.19)

$$\theta_t = \lim_{j-1 \to m} \{\theta_{tj}\},$$ (5.20)

for interaction at time t denoted by $j = 1,2,...,m$ within each time period, for $t = 1,2,...,n$.

The overlapping generations valuation model can be used for debt-equity swap. In that case, let $x_t(\theta_t) = \{D/K, g(K)/g(D), d\}[\theta_t]$, where D denotes value of debt, K denotes capital formation generated by equity participation. $g(K)$ and $g(D)$ denote growth rates of capital linked with equity and debt, respectively. Take θ_t-values to be consensually derived knowledge values over time and centered on directing foreign investment into debt-equity swaps through the doors of Musharakah, joint ventures, re-Takaful (re-insurance), and thereby, effectively replacing interest-based financing by profit sharing. All these together bring about Ummatic transformation, which is the regime of $(\theta_{t-1}, x_{t-1}(\theta_{t-1}))$-values over time, and hence of attaining evolutionary simulated values of the wellbeing function, W. On more on these issues we proceed on.

Every flow of foreign equity capital like I_0 used in debt-equity swap yields a terminal value of cash-flows or asset valuation at time t equal to $A_t(\theta_t, x_t(\theta_t))$, which then accumulates by the equity profit-sharing rate till maturity of the debt-equity swap. All such values are determined and accumulated recursively from the previous cash flows. These complementary *inter*relationships enter the wellbeing function, $W(\theta_t, x_t(\theta_t))$.

We now have the overlapping generations valuation model based on the simulated $(\theta_t, x_t(\theta_t))$-values. An appropriate selection of the x_t-vector is $\{(K/D)$-ratio, $(g(K)/g(D))$-ratio$\}$. These two ratios are moved towards equality with each other by means of a discursive control of the δ-parameter in the presence of limiting θ_t-values. In this case as well, the δ-parameter would be treated as a policy control variable.

The complete simulation of the overlapping generations valuation model is given by,

$$\text{Simulate}\{\theta_t\} \; W(\theta) = \Sigma_{t-1}{}^n[A_t(\theta_t, x_t(\theta_t))] - I_0, \qquad (5.21)$$

with θ denoting the sequence of consensual θ_t-values over time,

subject to the knowledge and time dependent recursive interrelations shown in (5.18)-(5.20).

With $x_t(\theta_t) = \{D/K, g(K)/g(D), \delta\}$, we would have the following kind of simulative knowledge-induction: As foreign investments $(I(\theta))$ are directed into Musharakah projects through re-Takaful, (D/K) tends adaptively towards $(g(K)/g(D))$ as δ assumes a value near to unity when all of debt is swapped by a proportion of the foreign investment flow. Simulative θ_t-values appear from the discursive decision-making and polity-market processes by dint of using ways and means of effectively mobilizing such foreign investments into Musharakah projects and in sustaining complementary relations between debt reduction and equity swaps and as an interest-based regime is progressively replaced by Musharakah profit-sharing rates.

In this specific case of debt-equity swap the wellbeing objective criterion means the sum-total of all debt write-offs by the progressive upward movement of the δ-ratios.

For the particular case where cash-flows denote compounded values of profit-sharing rates (r_t) at every time-period, we take $x_t(\theta_t) = r_t(\theta_t)$.

$$W(\theta) = \sum_{t=1}^{n} A_t(\theta_t, x_t(\theta_t)) = \sum_{t=1}^{n} [A_t(\theta_t).\Pi_{t=1}^{n}(1+r_t(\theta_t)^t] - I_0. \quad (5.22)$$

If we assume deductions from the asset value over time, say, dt at time t, the expression (5.22) takes the form,

$$W(\theta) = \sum_{t=1}^{n}(1-d_t)A_t(\theta_t, x_t(\theta_t)) = \sum_{t=1}^{n}[(1-d_t)A_t(\theta_t).\Pi_{t=1}^{n}(1+r_t(\theta_t)^t] - I_0 \quad (5.23)$$

The simulation of W is now subject to the complementary recursive relations,

$$r_t = f_t(\theta_{t-1}, r_{t-1}), \quad\quad\quad (5.24)$$

where r_t itself can be an expected value of a system of rates of returns obtained from the debt-swap portfolio with different contingencies across diverse projects that may prevail. This part of the contingency-based averaging process is not shown (see Hirshleifer, 1970). See Choudhury (1999) for a version of the intergenerational valuation model in Islamic perspective. r_t would be better represented by geometric averaging than arithmetical averaging, because of the underlying term structure of the rates subject to different contingencies and portfolios all simulated under non-linear complexity by recursive knowledge induction.

We also have the θ-assignment problem as in the Shuratic discursive process shown above by,

$$\theta_t = \lim_{i \to 1 \to m} \{\theta_{ti}\} \quad\quad\quad (5.25)$$

Interaction at time t are denoted by $i = 1,2,...,m$ for $t = 1,2,...,n$.

For several equity projects used in swapping debts with a sequence of foreign investments, I_{ts} say, $s = 1,2,...,S$, $t = 1,2,...,n$, starting and terminating at the same or different points in time in the future the above valuation model would be sinking fund of such foreign investment flows,

$$W = \Sigma_s\Sigma_t A_{ts}(\theta_{ts}, \mathbf{x}(\theta_{ts})) = \Sigma_s\Sigma_t [A_{ts}\Pi_{t=1}{}^n(1+r_{ts})^j][\theta_{ts}] - \Sigma_s\Sigma_t I_{ts}(\theta_{ts}) \qquad (5.26)$$

The complementary recursive relations are once again of the type,

$$r_{js'} = f(\theta_{j-1,s}, r_{j-1,s}), \qquad (5.27)$$

where, $r_{ts'}$ means the profit-sharing rate in a project that is co-operatively complemented with all other projects, $s = 1,2,...,S$. Such joint ventures and Musharakah projects would be multilateral projects in the Ummah (Choudhury, 1997). The equivalence for the expression (5.23) can be readily formulated.

Quantitative Issues in the Overlapping Generations Valuation Model

The principal information required for the overlapping generations valuation model is the limiting value θ_t of the discoursed knowledge values $\{\theta_{ti}\}$ over interactions (i) and time (t) as in the Shuratic Process methodology. Next there is the data requirement for the knowledge-induced socio-economic variables, $\{\mathbf{x}_t(\theta_t)\}$. These together enter the $W(\theta_t, \mathbf{x}_t(\theta_t))$ function as shown before. The important aspect of the feedback shown in Figure 5.5 brings out the specific nature of information generation for the valuation model.

There are two ways to generate θ_i-values and the $[x_1 \cap x_2][\theta_i]$ feedback (Choudhury, 2000):

1. The discursive Shuratic way is based on the methodology of the rhetoric of economics (McCloskey, 1985) and is adopted at every point of interaction, integration (consensus value). These values institutionally assign ordinal θ_i-values in terms of the feedback.

2. θ_i-values are assigned numerical values, such as, $\theta_i \geq 1$(high value), $\frac{1}{2} \leq \theta_i \leq 1$ (medium value), $0 \leq \theta_i \leq \frac{1}{2}$ (low value) based on the performance of the guidance, policies in concert with the market realities.

3. The values of $\{\theta_i, x_i(\theta_i)\}$ are then recursively determined.
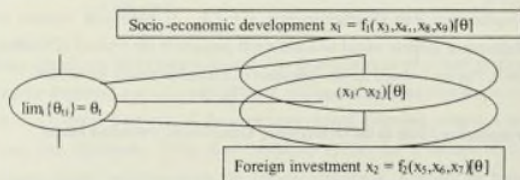
Figure 5.5: Recursive feedback and knowledge-induced expansion of the interactive, integrative and evolutionary sets

For example expressions (5.19) and (5.20) can be specified as follows:

$$20\% \leq \delta = (I/D)[\ 1 \leq \theta] \leq 50\%, \text{ or, } 10\% \leq r \leq 20\%;$$
$$10\% \leq \delta = (I/D)[\ \frac{1}{2} \leq \theta \leq 1] \leq 20\%, \text{ or, } 5\% \leq r \leq 10\%;$$
$$0\% \ \leq \delta = (I/D)[\ 0 \leq \theta \leq \frac{1}{2}\ ] \leq 10\%, \text{ or, } 0\% \leq r \leq 5\%.$$

Foreign Investment and Equity Participation in Saudi Arabia in the Perspective of the Overlapping Generations Model with Debt/Equity Swap

The Government of Saudi Arabia's new foreign investment law (Saudi Arabia online a) on the free flow of foreign investment in and from the country was recently passed in accordance with the Shari'ah laws and with the ordinance of the central Shura in concert with the High Council. These laws deal with foreign investment matters, particularly land ownership and the option for foreign investors to enjoy sole proprietorship of investments and tax holidays. Yet the Shari'ah appropriateness of foreign investments is to be strictly applied. Foreign investment privileges are given particularly to infrastructure projects and manufacturing and agricultural projects. Substantial tax benefits would be awarded to foreign investors. As a result of the Saudi new foreign investment law some major foreign investors have won lucrative contracts (Saudi Arabia online b).

Particular note is made here to the foreign investment bid of $145 million from Saudi Telecom to Lucent Technologies in the area of optical data network contract. The Saudi Chevron Petrochemical won a joint venture for $650 million plant to produce benzene and cyclohexane. There are many more such projects for which foreign investment data are not available but are expected to be a massive total amount. Table 5.1 provides the foreign investment statistics for the period 1995 and 1997.

Table 5.1: Foreign Direct Investment Statistics Investment (US$ billions, except where noted):

	1995	1996	1997
- Total Foreign Direct Investment	13.3	14.5	15.0
- U.S. Direct Investment	5.5	6.7	7.0
- Percent Share of Total Foreign Investment percent)	41.3	46.2	46.7

- Principal foreign investors: U.S.A., Japan, United Kingdom, Switzerland, France, Germany.

Source: Ministry of Finance and National Economy; Saudi Arabian Monetary Agency (SAMA); International Monetary Fund; U.S. Department of Commerce; U.S. Embassy estimates; Ministry of Industry and Electricity

It is clear from the above statistical information that equity and joint venture participation, which are encouraged under the Saudi new foreign investment law, can play a significant role in retiring Saudi Arabia's debt outstanding by a policy encouraging foreign investments to swap the total of US$22.4 billion external debt outstanding (Economic Intelligence Unit, 1996).

The $\delta=(I/D)$-ratio stood at 66.96% in 1997. But of this if we take 10% to be allayed annually in debt-equity swap, Saudi Arabia can hope to write off her foreign debts outstanding in about five years, given the high investment bids that are now being given to foreign investors in Saudi Arabia under her new foreign investment plan. The discourse (θ-related) and the attractiveness of productive returns from economic development that will go with foreign investment converted into debt-equity swap will need the active participation of the Saudi Majlis Shura and the High Council with national and foreign investors, giving the latter sufficient incentives on adopting debt-equity swaps, just as land ownership and tax exemption are being offered as attractive incentives under the new investment law. In this way, from an active developmental viewpoint the

overlapping generations valuation model would be suitable in carrying forward the discursive results. In such a case the δ-ratio would be applied annually in the perspective of the returns to be expected from the corresponding debt-equity swaps so attained by the corresponding moving δ-ratio.

With 10 per cent of external debt swapped annually by foreign investment and assuming that 1-5 million dollars are generated in benefits annually, we can think of an annual rate of return of about 5-10 per cent in the short term. The overlapping generations asset valuation model now takes the form,

$$W = \Sigma_s \Sigma_t A_{ts}(\theta_{ts}, x(\theta_{ts})) = \Sigma_s \Sigma_t [A_{ts} \Pi_{t=1}^n (1+r_{ts})^t][\theta_{ts}] - \Sigma_s \Sigma_t I_{ts}(\theta_{ts}) \qquad (5.28)$$

The complementary recursive relations are once again of the type,

$$r_{js'} = f(\theta_{j-1,s}, r_{j-1,s}), \qquad (5.29)$$

1 mill $ ≤ A_{ts} ≤ 5 mill $; 0.05 ≤ r_{ts} ≤ 0.10; 10% ≤ δ = (I/D)[½ ≤ θ ≤1] ≤ 20%.
$$\qquad (5.30)$$

t = 1,2,...5; s = 1,2,...,m.

Nature of Feasibility Study for Islamic Project Financing

The processes P_i shown above and implicated with both joint production menu and the diversity of interaction, integration and evolution across socio-economic and policy variables arise from the Shuratic Processes (also IIE-processes) of the Tawhidi epistemological methodology shown. This is reproduced below.

Numbered systems, such as the joint venture projects, joint menus of production, are denoted by l and k, with k ≠l (=1,2,...). i = 1,2, ... denote the

number of interaction. The IIE-processes giving circular causation interrelationships are shown in expression (5.31). P_1, P_2 etc. are similar processes with dynamic evolution of the knowledge-flow variable, $\{\theta\}$. The complementary or 'paired' nature of the diverse socio-economic and policy variables both within a system (process) and across systems (processes) conveys the meaning of circular causation in this unified methodology of systems.

$$\Omega \to_f \{\Phi\} \;\longmapsto_{f'} \{\Phi^*\} \to_{fi} [\theta_{ikl}] \to_{[i](ikl)} [x_{ikl}(\{\theta_{ikl}\})] \to_i \to_{f'(ikl)} \overline{\text{New}[\theta_{ikl}]} \to \quad \Omega = H \;(5.31)$$
$$[W([\theta_{ikl}].[X_{ikl}(\theta_{ikl})])]$$

with P_1 spanning from $\{\Phi^*\}$ through $[x_{ikl}(\{\theta_{ikl}\})]$ and P_2 spanning the $\text{New}[\theta_{ikl}]$ term.

| Tawhidi episteme | Shari'ah rules {Φ*} | Formation of knowledge-flows, {θ_ikl} | knowledge-induction of socio-economic and policy variables, x_ikl({θ_ikl}) | social wellbeing function to evaluate the degree of complementarities among diverse knowledge-induced variables | new processes | continuity till the Hereafter |

The square brackets indicate the matrices of variables, relations and wellbeing functions corresponding to the $([\theta_{ikl}].[X_{ikl}(\theta_{ikl})])$-entries across (k,l)-systems for given numbers of interaction (i). The same matrix meaning applies to every monotonic transformation of the relations of expression (5.31) starting from f^* onwards except $\Omega = H$, which cannot be augmented due to the nature of its super-cardinal completeness.

In the Islamic project feasibility the above methodology is applied by identifying the socio-economic and policy variables in the short, medium and long run cases and identifying there complementary interaction with the end of simulating the social wellbeing function. Chart 5.1 gives an example of such a social specification of a project.

Chart 5.1: An Example of Critical Complementary Relations between Socio-Economic and Policy Variables

Equity Financing

Unity of Knowledge in the Shari'ah $[\Omega \rightarrow_F \{\Phi\} \rightarrow_{r^*} \{\Phi^*\}]$

↓

Human resource development
Preference formation according
to the Shari'ah
social trust on an enterprise &
project
consumer satisfaction developed
by participation and trust

(θ_{ikl})

Real Economy	Interaction & Integration	**Financial Sector**
(System 1: P₁)		**(System 2: P₂)**
Spending in the real		appropriate joint
economy according to		venture, joint
Shari'ah rules: resource		production menus
Mobilization		avoidance of
↓		speculation
productivity		risk-diversification
product diversification		ATC reduction
sustained economic growth		stable returns
economic efficiency		shareholding
economic stability		stakeholding

$(\theta_{ikl}, \mathbf{x}_{ikl}(\theta_{ikl}))$: Real Economy, P_1 ⟷ $(\theta_{ikl}, \mathbf{x}_{ikl}(\theta_{ikl}))$: Financial Sector, P_2

↓

Project Evaluation by the Social Wellbeing: $W(\theta_{ikl}, \mathbf{x}_{ikl}(\theta_{ikl}))$:
An example is the overlapping generations valuation model

↓

Evolution into New$[\theta_{ikl}]$ by re-invoking $[\Omega \rightarrow_F \{\Phi\} \rightarrow_{r^*} \{\Phi^*\}]$

↓

Continuity

A Case Study: Enterprise, Economy and Community Interrelationships: The Case of the National Commercial Bank in Saudi Arabia

The strategic chart of the Islamic financing division of the National Commercial Bank is adapted to a version of the IIE-process model in Chart 5.2 (Choudhury & Al-Hallaf, 2001). Projects selected in the Islamic division of NCB are expected to pass the linkage test in respect to clientele satisfaction and community benefit together with attaining economic profitability of shareholding by community members.

To explain how the NCB goals are interrelated we explain in Chart 5.2 the interaction between these principal strategic target areas. These are Enterprise Planning, Economic Planning and Commercial Development Planning. In each of these areas there are a number of strategic sub-goals and mechanisms to attain the overall enterprise goals, as shown. Thus a system of interactive relations leading to institutional consensus is kept in view having a multidimensional goal oriented objective criterion. This is of the social wellbeing type that we have referred to in our IIE-process methodology.

In the financial input share capital comes from the common shareholders (retained earnings), the employees of NBC and the shareholders in the community at large. The share capital so raised is then mobilized into appropriate projects in the real sector in accordance with Shari'ah recommended directions and financing instruments. Among such project directions are trade in commodities, real estate investment, industrial development, infrastructure and social goods.

The important goal here is to promote market friendly instruments that can vitalize productive spending and promote market exchange. Through market-driven forces inter-sectoral linkages and production complementarities are importantly aimed at. Consequently, the joint action of raising and mobilizing

share capital in such projects by sectors are found to be a mix of those of the short, medium and long run. The usual Shari'ah instruments are used, namely, Mudarabah, Musharakah, Murabaha and secondary stock-market tradable certificates that revolve around hire-purchase, rental, commodity exchange with valuation based in spot prices and transactions. Future swaps, present valuation of deferred cash flows and speculative transactions in currency and portfolio investments are avoided.

It is essential in the Enterprise-Economy-Community linkages to keep shareholding and clientele satisfaction foremost in view. This is a consequence of allowing for effective participation by the shareholders and community members. Hence, stakeholding is encouraged along with shareholding in the activities of the Islamic investment division of the NCB. Also sustainability of the enterprise in the area of productivity and financial returns is a consequence of the linkage between the real economy and the financial sector.

Chart 5.2: Strategic Interrelationships Between Enterprise, Economy and Community: The Case of National Commercial Bank in Saudi Arabia

Enterprise Planning   **Economic Planning**

  <u>Portfolio Mix</u>: Short, Medium & Long Run Projects and Project Financing

<u>Input</u>   <u>Output</u>   <u>Real Sector</u>   <u>Financial Sector</u>

Share capital   profitability & returns   product and   risk-diversifcation
Financial instruments buyers' preference   productivity   cost control
Project selection   & satisfaction   economic   stability
Socio-economic   shareholding (equity)   efficiency
Variables & relations stakeholding (collective
                             Decision-making

Enterprise Shura and Participatory Decision Making

Community Planning

Shareholding & Stakeholding

Consumer satisfaction
Product preference
Returns & profitability of venture
Economic & financial stability
Community Demography
Human resource development along Shari'ah lines
Participation and discourse

**Social Wellbeing with the joint preferences of
Enterprise, Community and Economy**

Conclusion

The topic of project financing and evaluation in Islamic perspective has proven to be profoundly epistemological in methodology. This is one more link in the chain of that universal methodology of Tawhid as unity of divine knowledge that expresses itself in various ways. In our case of studying the methodology and content of project financing we invoked the Tawhidi worldview as a systemic understanding of unity of knowledge. In this we explained the Tawhidi unity of knowledge according to the exegesis of the Qur'an, further explicated by the Sunnah, and applied to the conceptual construct and application of these groundwork of the Shari'ah to the complementarities or paired nature of systemic entities. The topic of project financing brought out this context in terms of the Islamic basis of linkages between shareholders, joint production menus, inter-sectoral and inter-agent interaction leading to consensus on ways to do things. Such interactive consensus evolves along the dynamic path of the knowledge-induced nature of such interrelationships. We have thus argued that many of the known ways of project financing and project evaluation in mainstream financial and economics literature do not hold up on logical grounds of the tenets of the Shari'ah.

In this category we have questioned the method of present valuation, money value of time, project financing by interest rate instruments and thus the concept of resource mobilization versus savings. The neoclassical concept of factor substitution in the production menu was found to be inapplicable in the extensively participatory and complementary relationship between factors and between the enterprise and its shareholders. Hence joint production and the consequential changes in the formulation of the cost and benefit of the enterprise were studied. In the case of Islamic project valuation, the overlapping generations model of asset valuation replaced the present-value model of discounting cash flows.

It should be the goal of Islamic banks to identify projects by appropriate feasibility studies that make all projects funded by the Shari'ah to be socially viable while they are privately profitable. This again is the feature of complementarities between social and economic goals that are attained by the Shari'ah instruments in the light of the Tawhidi unity of knowledge. When so driven by the epistemological vision, no Islamic bank can remain oblivious of the strongly Shuratic Process methodology in its systemic domain or ignore the important role of Islamic human resource development in the sense of Tawhid and Muamalat or remain independent of the intellection process that goes between learning and practice in the Tawhidi worldview. These along with the systemic implications of the methodology and its application are derived from the Tawhidi foundation of the Islamic worldview. They cannot be derived by rationalistic approaches or by invoking Islamic implications without consciously invoking the Tawhidi methodology of unity of knowledge in reference to its systemic conception and application.

CHAPTER 6

A PARADIGM FOR ISLAMIC BANKING

Islamic banks as a novel phenomenon in the financial world since the mid twentieth century have been construed as financial intermediaries that mobilize resources in the direction of projects approved by the Islamic Law (the Shari'ah) using Islamic financing instruments (Siddiqi, 1983). Islamic modes of financing comprise two basic principles, namely the interest-free financing instruments in the private sector and development financing instruments both based on cost and profit sharing. Some of the principal instruments involved in such forms of resource mobilization are as follows (various Islamic Development Annual Reports):

(1) Trade financing and cost-plus mark-up on traded goods (Murabaha),
(2) Profit-sharing (Mudarabah) and equity participation (Musharakah) in which cost-sharing among partners is also included,
(3) Rents on purchased equipment (Ijara),
(4) Islamic banking portfolio using secondary financing instruments, such as shares and stocks revolving around the above-mentioned instruments.

However, the financial resources are to be mobilized with the important condition of keeping the Shari'ah in view. They are therefore to be directed into the Shari'ah recommended projects and goals. Thereby, socio-economic development and ethical prerogatives become part and parcel of the Islamic financing modes. Being so, Islamic banks have a mandate that extends beyond simply serving its clientele by securing funds in the above-mentioned kinds of portfolios. They become development institutions, and thereby, play an important role in the economic and moral uplift of the Islamic society or community from

the viewpoint of the Shari'ah Islamic banks are thus to co-operate between them and with other national development institutions in accordance with the spirit of co-operation upheld in the Shari'ah for the benefit of all.

Precepts of the *Shari'ah* that Should Guide the Goals and Instruments of Islamic Banks

What are the precepts of the Shari'ah in the financial field? They are to establish social security, property rights and the rights of progeny. In the extensive domain of the Shari'ah these goals are combined with the mandate of preservation of the Islamic State.

Within the mix of the above-mentioned the Shari'ah precepts, we find that the social, economic and political goals are taken up together with the financial ones. These together comprise the totality of the social, economic and political development issues of an Islamic society. Hence, when Islamic banks are linked with such a comprehensive network of goals in the light of the Shari'ah, the totality of the socio-economic and socio-political goals along with the financial ones would predominate in the objective criterion of an Islamic bank.

For example, in the attempt to secure the funds of its clientele in the Shari'ah recommended ways, which comprise the tenet of securing property rights, the Islamic bank must embrace the other Shari'ah tenets as well. Thereby, socio-economic development goals become important in the Shari'ah determined social wellbeing function.

What is the Social Wellbeing Objective Criterion of Islamic Banks?

The social wellbeing function as the objective criterion of the Islamic bank serving the tenets of maintaining social security, protection of progeny and

preservation of the Islamic State, becomes a description of ways and means of financing resource mobilization that establish sustainability and the high ideals of the Islamic faith. The last goal involves the principle of Tawhid, that is the oneness of Allah (God) as the highest principle of Islam. The model of implementing the principle of Tawhid in the socio-economic, financial and political order involves organizing the modes of resource mobilization, production and their financing in ways that bring about complementary linkages between the Shari'ah determined possibilities. In this way, there appears co-determination among the possibilities, evolution of the instruments to be selected and implemented by many agencies in society at large. Islamic banks form a part and parcel and interconnecting medium of this lively developmental organism.

The developmental possibilities are realized both by the medium of discourse between management and shareholders of an Islamic bank as well as in concert with other Islamic banks, the central bank, enterprises, government and the community at large. In this way, a vast network of discourse related networking and relational system is established between the Islamic banks and the socio-economic order as a whole. Such unifying relations as participatory linkages in the economy wide sense convey the externalized meaning of Tawhid. This highest principle is now understood as the unity of knowledge emanating from the oneness of Allah as the one, who is complete and absolute in knowledge. The external meaning of *Tawhid* is now explained in terms of an increasingly relational, participatory and complementary developmental order wherein possibilities unify among themselves. This unification process and sign in the externalized world is a meaning of the principle of Tawhid as we live it. The discourse related process and institution of determining such unifying possibilities by Islamic banks within the comprehensive outlook of the Shari'ah is called the Shura of the Islamic banks.

In the end, by combining the totality of the Shari'ah precepts, Islamic banks become as much investment oriented financial intermediaries, as they are agencies of sustainability of the socio-economic order, the socio-political order and preservation of community assets. It is now obvious that Islamic banks even when using the most modern kinds of instruments to attain such goals and sustain them over the long term would promote human resource development. In this way, the internal efficiency of Islamic bank and its informed connection with the community at large can be harnessed. Yet human resource development as a powerful instrument that causes Islamic banks to become development centered financial organisms in the total life of the Islamic community should be appropriately determined in the light of the Shari'ah.

Take for example the questions relating to analytical methods of project evaluation. While it would be necessary to understand the complex methods of asset valuation from the viewpoint of interest-based concepts of the time value of money and the like, yet the truly Islamic methods of project evaluation would be central to the training of human resources in Islamic banks. In the same light, such training is to be imparted to the community through educational and practical training programs.

Likewise, human resource development for project evaluation, technical assistance and feasibility report preparation on projects must keep in view the integrated outlook of the Islamic economy keeping the goals of the Shari'ah in mind. This can be realized by using a model of linkages among economic sectors that together can mobilize money into real economic activities and thus deter funds from speculative ventures, portfolio investments, bonds and money market funds.

On the other hand, resource mobilization in all avenues of the Shari'ah recommended possibilities should be promoted so as to create a close link between monetary aggregates and real productive activities. The nature of money now turns out to be endogenous through its circulation in the real economy as a 'quantity'. Money is not determined in this case by money demand and supply concepts, since money does not have a market of its own, as in the case of goods and services. Instead, there are markets only of real goods and services that value the worth of money in the first place. Besides, such goods and services are those that are recommended by the Shari'ah in the light of wellbeing and linkages to generate complementary relations between various possibilities. On the basis of such real market exchange, real returns are measured in terms of prices, output and profits. These in turn determine the return on money. Islamic banks thus become important links between the national central banks, the economy and community in realizing such endogenous money-market *inter*relations.

The Nature of Balance Sheet of an Islamic Bank in the Absence of Interest-based Financing

Given below is a model of the balance sheet of an Islamic bank in the light of the above-mentioned kind of general system of interactive, integrative and dynamic relations between money and the real economy. It reflects the valuation of asset and liability in the perspective of the endogenous interrelationship between financial flows and the real economy in terms of a developmental outlook. This is seen as the sure way to reduce interest rates in an economy wide sense (Choudhury, 1997).

Table 6.1: Model inter-Islamic Bank Balance Sheets in the Case of Endogenous Money

Balance Sheet for Islamic Bank B1	Balance Sheet for Islamic bank B2
Initial deposit = ID 1.00	Initial deposit = 0
Reserve ratio = r' = 0	new deposit = $1.g_2$
Retention = $1.g_1$	retention = $1.g_2.g_3$
Loan = investment (spending)	loan = $1.g_2 - 1.g_2.g_3 = 1.g_2^2$
In joint venture = $1.g_2$	

ID = Islamic Dinar.

In Table 6.1, let us explain the relationship between the reserve ratio, r', and inter-bank loan flow as demand for liquidity for undertaking investments or spending. Spending of all kinds in the 'good things of life' as prescribed by the Qur'an gives the meaning of resource mobilization of both physical and financial resources. Since inter-bank loans for liquidity will increase in the face of increased demand for investment (spending), therefore, the reserve ratio, r', will decrease. Now the change in the quantity of money (M) is related to the change in the demand for liquidity (D), dD, by the multiplier, $dM = dD/r'$. dM is inversely related with r'. Investment (spending) demand increases as r' decreases and vice versa. See Choudhury (1998) for details.

B1 and B2 are two Islamic banks engaged in inter-bank loans. In a joint financing of venture (Mudarabah and/or Musharakah), let g_1 denote the return to B1. This return then forms an asset of B1. Let g_2 denote the return to B2, which then forms a liability to B1. Likewise, g_2 forms a return to B2 and g_1 forms a liability to B2.

New money in the economy equals the amount of investment (spending) equal to $1ID.g_2$. In this way, in a multiple inter-Islamic bank loan-flow under joint

venture, the total quantity of new money or investment capital (spending) arising from 1ID of initial spending equals,

$$g_2 + g_2^2 + g_2^4 + g_2^8 + \ldots\ldots = g_2 (1 + (g_2 /(1 - g_2^2))) \qquad (6.1)$$

The total amount of spending, Sp, which must be matched by the quantity of endogenous money in circulation is now given by,

$$Sp = 1ID + g_2 + g_2^2 + g_2^4 + g_2^8 + \ldots\ldots = (1 + g_2 - g_2^3)/(1 - g_2^2). \qquad (6.2)$$

To a linear approximation the above expression reduces to,

$$Sp = \text{new money} = 1 + g. \qquad (6.3)$$

Likewise, for M ID of initial spending as endogenous money, the total money creation or new spending equals $M(1 + g)$. Since g is determined by the growth of real sector output, therefore, money is created in exact equivalence with this growth rate. For the concept of endogenous money see Choudhury (1997).

One of the many healthy consequences of endogenous money is that inflation remains controlled, since the value of transactions (as a reflection of investment or spending demand) per unit quantity of money in circulation remains stable. Another implication of endogenous money is that it creates a currency-denominated economy rather than demand-supply of money based on promissory notes and thus on an interest-bearing reserve ratio set both between the central bank and commercial banks and by the excess reserve ratio set by commercial banks.

A Contrasting View Between Endogenous and Exogenous Money Supply by Banks

The contrast between endogenous and exogenous monetary systems is this. Assume that ID1=$1.

Balance Sheet for Conventional Bank B1   Balance Sheet for Conventional Bank B2

Initial deposit = $1.00	Initial deposit = 0
Reserve ratio = r' = 10%	new deposit = $0.90.g_2$
Retention = $0.90.g$	retention = $0.90.g_2.g_3$
Loan = investment (spending)	loan = $0.90.g_2 - 0.90.g_2 \cdot g_3 = 0.90.g_2^2$
In joint venture = $0.90.g$	

The central bank reserve is 10%. Hence, $dM = [dD/0.10]\$ > ID\ dD$;   (6.4)

$Sp = 1ID + g_2 + g_2^2 + g_2^4 + g_2^8 + \ldots\ldots = \$0.90x(1 + g - g_2^3)/(1 - g_2^2)$

$< ID\ 1x(1 + g - g_2^3)/(1 - g_2^2)$.   (6.5)

     The following shows the contrast between the two monetary systems with respect to the goals of economic stabilization and economic growth. Stabilization in the exogenous (fractional reserve monetary system) is passed on to the central monetary authority using the reserve ratio. Besides, the central bank reserve is positively related with the interest rate, in that as the savings increase with higher interest rate the central bank reserve increases by the amount of the new deposits. Furthermore, if there is pursuit of aggressive monetary policy by the central bank, both the reserve ratio and the prime rate of interest may move upwards together. Now a higher amount of monetary contraction occurs by the twin decrease in dD and r. This can be seen in the expression (6.4). This will cause even a lower difference in the much-desired reserves of the central bank for transaction purposes in the exogenous fractional monetary system than in the 100-percent reserve requirement monetary system.

In both of the above cases with exogenous money in fractional reserve monetary system, Sp decreases, so that the role of the real economy in terms of spending in the Shari'ah outlets (socially productive and useful) for economic stabilization is reduced and taken over by the central bank's function affecting reserve ratio and the prime rate of interest. The withdrawal of resources from spending causes a lower rate or a volatile rate of return in economic and financial activities. Consequently, the growth rate of the money-real economy relationship in 100-percent reserve requirement monetary system is higher than the growth rate of the fractional reserve requirement monetary system.

Spending as the Resource Mobilization replacement for Savings and Monetary Reserve

The example given above brings out the nature of spending in the Shari'ah recommended market activities as the source of economic stabilization, economic growth and social wellbeing. The last concept was explained above substantively in terms of the Tawhidi principle of universal complementarities (complementary relations) between all Shari'ah-recommended goods and services.

Total spending variable, S, can be related to real output by the equation,

$$S = A.(Q/p)^b, \tag{6.6}$$

where, Q denotes nominal GDP; p denotes the price level; A is a constant; b denotes the spending elasticity of Q/p.

Expression (6.6) is written in terms of growth rates as,

$$g_S = a_1.g_Q + c.g_a \tag{6.7}$$

where, g_s denotes the growth rate of spending;

   g_Q denotes the growth rate of output;

   g_u denotes the growth rate of an unaccounted for random variable.

It is known that the real aggregate demand (spending) function would be flatter than the supply curve of real output. Hence, $g_s < g_Q$. Therefore, the rate of growth of real output growth is expected to be higher than the real spending rate.

The above result is affirmed by Metwally (1989), who found statistically significant relation between real output growth and investment growth, investment being the second major component of total spending in the aggregate demand function. Since real output growth rate is an indicator of real productivity growth we conclude that inflation is checked when the rate of growth of real productivity exceeds the rate of growth of spending and which in turn is a significant positive function of real M1.

Interest Rate Effect on Money Supply

Metwally also estimated that the rate of interest has a significantly negative relationship with the rate of growth of money demand (M1). Now by combining the above results we deduce the following results:

$i\downarrow \Rightarrow$ Spending $\uparrow \Rightarrow$ Investment $\uparrow \Rightarrow$ rate of return, r increases and stabilizes $\uparrow \Rightarrow$ stability in M1$\uparrow \Rightarrow$ inflation stabilizes.   (6.8)

Expression (6.8) can be extended to the following circular relationship under the effect of a sustained reinforcement of the result of (6.7) on the basis of preferences to spend in the 'goods things of life' as the Qur'an encourages spending in 'moderation' on the Shari'ah recommended goods and services. The

resulting 'unspent' financial resources is not to convey the idea of macroeconomic 'saving', which is driven by the rate of interest. Contrarily, as argued in the appendix to Chapter 2, the concept of resource mobilization through Shari'ah instruments is contrary to the idea of withdrawal from the resource mobilization cycle when banks operate on lending and borrowing on the basis of savings that give a rate of interest, that is a pre-fixed price of 'saving' as money capital.

Stable r $\Rightarrow$ inflation stabilizes $\Rightarrow$ further spending $\uparrow \Rightarrow$ M1 $\uparrow \Rightarrow$ circular causation

$$(6.9)$$

A strongly endogenous relationship in this circular relation is proven by the 95% level of significance in the t-statistic for the estimated coefficients in Metwally's regression system. What is left out of Metwally's equation is circular causation.

The continuity of the circular causation in expression (6.9) would depend on the formation of preferences towards productive spending in accordance with the Shari'ah, that is in accordance with the usage of the Shari'ah-based financial instruments that generate complementary relations between money and the real economy and thus bring about linkages in the general equilibrium system of interaction, integration and creative evolution of the money and spending variables. The preferences so formed are carriers of the knowledge production in the general equilibrium system of interrelations centered on Tawhidi causality of unity of knowledge between Shari'ah possibilities. The final implication then is that Metwally's results, which were time-dependent regression estimation, do not produce the circular causation as we have implied out of the first round in the one-directional results of expression (6.8). Only recursive continuity of knowledge formation can regenerate the process shown in expression (6.9). This

requires institutional sensitivity to the *interrelated* process in the case of the money-real economy linkage issues.

Evolution of Islamic Banks

We have now explained the Islamic banking concept in the framework of a general system of relations. Islamic banks are seen to involve themselves as financial intermediaries and investment-oriented institutions in bringing about wellbeing of the community, society and the economy in the light of the Shari'ah. Next we will examine what role Islamic banks have played in recent time in these directions.

Historical Performance of Islamic Banks

We first examine the recent portfolio of financing made by the consortium of Islamic banks globally (International Association of Islamic Banks, 1988). First we will examine the Islamic banks' balance sheet during the early years. We will then examine the recent performance of Islamic banks in different parts of the world. We will infer what structural change has taken place in recent times from the past trends in Islamic banks' financing. Specific cases will be mentioned here including the experience of Islamic Development Bank. It should be remembered nonetheless that IDB being a regional development bank, it functions differently from an Islamic bank. An Islamic bank is a private sector financial intermediary. It is subject to the statutory monetary policy requirements of the central bank of the parent country of the bank.

In the early years between 1987 and 1988 alone, the aggregate balance sheets of Islamic banks showed an increase in the balance of accounts by 7.4 per cent. This increased further by 14.9 per cent in 1989 over 1987. Total assets

increased by 107.4 per cent between 1987 and 1988. Shareholder's equity increased by 12.4 per cent from US$469.3 million in 1987 to US$527.3 millions in 1988. Net distributed income increased from US$230.3 million in 1987 to US$280.1 million in 1988, a growth rate of 21.7 per cent. Rate of return on total investments was 15.8 per cent between 1987 and 1988. Equity volumes increased by 50.3 per cent, while the rate of return on equity was 18.6 per cent between 1987 and 1988. Total rate of return on capital was 18.6 per cent in 1988. Net profit rate was 11.1 per cent in 1988.

Much of the high returns were due to concentration of resource mobilization in trade financing (Murabaha). Equity financing and joint ventures formed a distant small ratio. Hence in the aggregate, Islamic banks performed remarkably well during this early period of time as far as financial returns on Murabaha were concerned. Shareholders' wealth was thus well protected by this financial instrument.

The 1988 sectoral allocations of selected Islamic banks resources are shown in Table 6.2. We note from it that agricultural and social allocations were minimal, except in the case of Sudan Islamic bank.

Table 6.2: Sectoral Allocation of Investment of Islamic Banks (Percentages of Total Financing) 1988

Faisal Islamic Bank of Egypt

Industry	30.6
Trade	30.4
Agriculture	3.0
Other sectors	36.00
Total	100.00

Dubai Islamic Bank

Trade	90.6
Services & Family	7.6
Other sectors	1.8
Total	100.00

Sudan Islamic Bank

Agriculture	34.0
Industry	23.5
Trade	10.8
Transportation	10.0
Other sectors	21.7
Total	100.00

Faisal Finance Institution Inc. Turkey

Metal industry	26.3
Chemical & Petroleum	17.8
Clothing	16.7
Food	7.9
Tools	5.7
Paper & printing	5.3
Agriculture	16.9
Contracting	3.4
Total	100.00

Source: *The Aggregate Balance Sheet of the International Association of Islamic Banks*, Cairo, Egypt, IAIB.

Recent Performance of Islamic Banks

In recent times, Islamic banking and financing services have increased phenomenally around the world. There now exist 150 such banks spread over most countries of the world: Yet, the same trend in financing is found to intensify with a concentration around Murabaha (trade financing). Equity participation and profit sharing have remained distant minimum in the total allocation of resources. Secondary financial instruments in accordance with the Shari'ah could not be developed so as to give rise to a viable Islamic capital market. Islamic financial instruments are therefore traded in conventional stock markets. As a result,

neither the developmental aspects of Islamic banking in favor of realizing an Islamic economy nor the distributive goals for the poor and marginal enterprises could be attained.

The reason for this shortcoming of Islamic banks could also be due to the prevalence of interest-based banks in the economy where Islamic banks are minor participants. Moreover, Islamic banks operate under the laws of their country's central bank, which is driven by non-Shari'ah laws.

Case Studies

Bank Islam Malaysia Berhad

Bank Islam Malaysia Berhad, one of the most progressive Islamic banks in the world today, quoted the following proportions of their Mudarabah and Musharakah funds (BIMB, 1994). Mudarabah financing stood at 0.21 per cent of the total financing in 1993 and 0.34 per cent in 1994. Musharakah financing stood at 1.85 per cent and 1.81 per cent, respectively, for the same years. These funds held by shareholders did not involve any active stakeholding and participation in decision making except for major shareholders. The bank acted as management participant, Mudarib, on behalf of its customers to make all decisions singly. Thus a principal-agent relationship existed in financial management and decision-making. Mudarabah and Musharakah became sleeping partnership in financial contracts between the clientele and the bank (Choudhury, 2001).

Al-Rajhi

In the case of Al-Rajhi banking and Investment Corporation in Saudi Arabia, Islamic banking services have shown good share values in its various Islamic financial instruments. This is indicated by their appreciating unit values. As shown in Table 6.3 for Al-Rajhi banking services, unit shares of all funds increased within the span of a mere single week. Yet the condition behind all these instruments is their nature of fixed deposit without dividends allowed to be withdrawn in the short-term (internet version, 4/22/01).

Table 6.3: Al-Rajhi Islamic Banking Services: Current Unit Price
(Dated 4/22/01 internet version)

Name of Fund	Unit Price (This Week)	Unit Price (Last Week)
Commodity *Mudarabah* Fund	$1,580.73	$1,579.31
Local Shares Fund	SR3,651.81	SR3,636.02
Global Equity Fund	$139.98	$138.37
Fund for Egyptian Shares	$55.60	$53.65
Middle East Equity Fund	$92.69	$91.08
Balanced Fund - 1	$1.1129	$1.1079

In April 2001 (internet version April 29, 2001), Al-Rajhi Islamic banking service posted 17.5 per cent increase in its profits over the first Quarter a year ago. During this quarter shareholders' equity capital increased by 8 per cent, that is to Saudi Riyals (SAR) 7 billion. Customer deposits rose to SAR 37 billion and operating revenue stood at SAR 904 million.

Al-Rajhi has much of its Islamic funds in fixed deposits revolving around several kinds of Islamic financing instruments. Fixed deposits although good for affluent investors, who do not need to cash off in the short run, are not conducive for the marginal depositors and enterprises. Financial needs and exigencies affect marginal clientele continuously over the short run, particularly in financial markets and economy that have become volatile these days. Hence a good degree of liquidity should be available to marginal depositors upon demand. Flexibility of cashing off without penalty to depositors should mark the feature of such funds. This would establish one of the conditions of the Shari'ah, which is easy access to property rights by the needy depositors.

It is also found that some of the unit values are too high and may preclude small-scale investors from enjoying such financial instruments. It might be good to think of diversifying the large unit value shares into shares of smaller ones with affordable unit values. The result would be both product and risk diversification without diminution in the total unit value of shares. A good area to so diversify the shares is unit trusts with sectoral diversification. Linkages between sectors can then be generated by means of the Islamic financing instruments as a sign of economic development.

Islami Bank Bangladesh Ltd.(IIBL)

The Islami Bank Bangladesh Ltd is one of the most successful and prominent of Islamic banks internationally. From a cursory examination of its performance data we can deduce the level of popularity and financial stability of IBBL. Much of the information given below is sourced to Rahman (2001).

Table 6.4 (see statistical appendix) gives the ranking of IBBL with respect to selected prominent private sector banks in Bangladesh. The level of popularity of IBBL can be deduced from her significantly highest volume of deposits. The highest volume of investment made by IBBL shows the effective mobilization of the deposits into productive outlets rather than holding them in the form of liquid saving. Consequently, the investment/deposit ratio is the second highest. Her financial productivity measured by income/employee is near to the highest. It is also found that the highest volume of investment results in attractive dividends out of total income. This aggregate figure on investment as resource mobilization over-rides a slightly lower investment per branch. This consequence shows up in a slightly lower net profit level. But such an indicator is a signal to the common shareholders' wellbeing that IBBL keeps in view. Despite the lower retained income after dividends are declared, this indicator of popularity of IBBL does not result in lower incomes, which is seen to be near to the highest level. Popularity and competitive position of IBBL is also pointed out by her number of branches, which is higher than all other Islamic banks. Total employment figure is therefore the highest, although manpower per branch is the lowest. But when tallied against the investment per branch, the technical efficiency (investment per branch/manpower per branch) is the highest. This again reflects the highest technical productivity level of IBBL of all the conventional banks compared with. The highest efficiency level of IBBL is shown by her lowest cost of fund per branch, which over-rides the slightly higher total cost of fund. This again is an

indicator of client-friendly banking procedures, which increases the popularity of IBBL among clients, especially among the microenterprises in Bangladesh.

International Consortium of Islamic Banks

The following abbreviations are used in the following tables:

BIBB: Al-Baraka Investment Bank of Bahrain; BIB: Bahrain Islamic Bank
FIBB: Faysal Islamic Bank of Bahrain; IBBL: Islamic Bank of Bangladesh Ltd.
DIB: Dubai Islamic Bank; FIBE: Faysal Islamic Bank of Egypt;
JIB: Jordan Islamic Bank; KFH: Kuwait Finance House;
BIMB: Bank Islam Malaysia Berhad; QIB: Qatar Islamic Bank

On the financial stability indicators we find that total assets of IBBL increased at a handsome steady rate (Table 6.5 in the statistical appendix). Likewise, in comparison with several banks IBBL's statutory reserve is sound (Table 6.4). Revenue stream and equity streams are likewise competitive (Table 6.5).

We turn next to many such Islamic banks, which together have performed with sound financial stability and have been popular among their clients. Table 6.5 shows that except for some volatile movement in deposits for BIBB, in deposits, equity, assets and revenue for FIBE and BTFH, most other Islamic banks have recorded medium to healthy growth in all the critical financial indicators.

Finally, Table 6.6 (statistical appendix) shows that the Rate of Return on Assets and the Rate of Return on Equity have both been significantly positive and on an increasing trend between 1990-98. These figures being positive, they indicate that Islamic banks internationally are fairly solvent.

Islamic Development Bank

In recent times, the Islamic bank financing concentration in foreign trade has continued, because this instrument was found to be the most profitable and attractive by its low risk. Foreign trade financing comprised 72 per cent of total financing of IDB on a cumulative basis between 1976 and 1995. Of this, much was on short-term trade financing. Long-term trade financing comprised a mere 2.87 per cent of total trade financing between 1976 and 1995. Yet foreign trade financing instrument is not of a developmental type. Dependence upon imported goods and inputs from non-Muslim countries can increase the debts of importing countries and IDB member countries' currency depreciation. This problem was in fact noted with the foreign trade portfolio of IDB during the 1980s. In spite of the concentration of IDB financing in foreign trade, inter-communal trade among the member countries is a mere 9-10 per cent of their global trade since many years now. Member countries' global share of trade was a mere 7 per cent in 1995.

Over the twenty years period, 1976-1996, IDB had financed only three profit-sharing projects. Financing in these comprised only 0.15 per cent of total project financing (IDB, 1996). Recently, IDB has established a number of co-operative projects with Islamic banks. The emerging Islamic Banks' Portfolio for Investment and Development is a fund jointly established by IDB and Islamic banks along with other participants. Between 1988 and 1996 a total of US$100 million was allocated in syndicated operations. IDB's participation was 24.5 per cent. Islamic banks' portfolio comprised 8.7 per cent. IDB's Unit Investment Fund comprised 5.8 per cent. Pension Funds comprised 3.5 per cent. Other Islamic banks held 57.5 per cent of their assets in this portfolio. Such syndicated operations have been opened up in only two countries, Pakistan and Egypt, and then too they comprise only lease and trade financing operations. It had only 5.5 per cent of total IDB financing between 1976 and 1995. Participation in Islamic

banks' portfolio is of a shareholding type, that is Mudarib type, whereby IDB acts as the manager of the Islamic banks' portfolio.

Inferences Drawn

From the quantitative picture given above it is clear that Islamic banks have done well in being profitable institutions towards maintaining the liquidity position of their depositors and shareholders. Yet the element of socio-economic development and a better prospect for diversification of project financing instruments is lacking. Consequently, the full impact of Islamic banks in development financing and in establishing sustainability of an Islamizing community remains a potential problem. Social wellbeing of the type we have explained in this paper in terms of measuring and directing complementary relations among the Shari'ah recommended possibilities, needs more extensive networking and complementary relations among the financial and socio-economic development goals in accordance with the tenets of the Shari'ah.

Conclusion

We have noted in this paper that Islamic banking in accordance with the Shari'ah precepts is a landmark in new paradigmatic thinking interrelating finance, economy, community and society. Islamic banks are therefore to carry out their operations and organize their plans and programs according to such a general systems outlook of finance with socio-economic development. It would then combine the goals of economic efficiency (growth) and social justice into complementary relations with each other. Such a model of socio-economic development is very different from the financial, economic and social models we are facing in the present age of capitalist globalization. To achieve the complementary goals and so actualize wellbeing for all, Islamic banks ought to

focus on both financing as well as development in accordance with the tenets of the Shari'ah. We have laid down this perspective in this chapter.

We have also noted that Islamic Banks worldwide have done fairly well in terms of their financial stability and popularity among clients. In accordance with the arguments of this chapter respecting the complementarities between economic/financial efficiency and social perspectives, the simultaneously good performance on popularity indicator and financial stability brings out this point of the wellbeing objective of Islamic banks measuring such complementary relationship. That is a most powerful implication of the unity of knowledge in systems according to the Tawhidi paradigm that we have presented.

These are indications that there is a rich premise for the normative principles of ethics and values emanating from Islam to be incorporated in the matters of money, finance, accountability and the real economy. In the context of volatile capital markets it is all the more necessary to start thinking of and organization along lines of the money, finance and real economy linkages within corporate and national accounting systems. Such a bold experiment could save the prevalent equity markets from the vagaries of short-term interest-based fluctuations and the jitteriness of investor and consumer preferences now being seen in regards to continuous capital movements across risky portfolios of securities, shares and bonds yielding low rates.

Throughout this book our argument in terms of the knowledge-centered worldview of Islamic economic and financial issues as for all issues of the Qur'anic world-systems is that product and risk diversification are automatically realized. In realizing these attributes the interplay of markets with guidance by polity must conjointly lead the way towards transformation and organization of household preference, production menus and public and social policy selection

and their enforcement. Stability and spending are automatically increased in the face of such diversification. But on the same argument, diversification, linkages and complementarities are coterminous attributes of the knowledge-centered world-systems in which economic and financial matters abound. Thus an Islamic polity-market interaction, integration and evolutionary dynamics underlie the structure of a coterminous interrelationship between portfolio diversification in accord with the real markets and by its risk diversification in a broad meaning of participation on all fronts.

STATISTICAL APPENDIX TO CHAPTER 6

Table 6.4: IBBL vis-à-vis Private Sector Banks in Bangladesh (as on December 31, 1997)

(Taka in Million)

Si. No.	Particulars	IBBL	NBL	ABBL	UCBL	CBL
1	Paid up capital	318	391	373	230	1602
2	Statutory reserve	282	321	286	191	263
3	Investment loss Offsetting reserve	539	Nil	Nil	75	Nil
4	Normal capital	1429	1020	743	496	172
5	Provisional short-fall	Nil	342	Nil	493	584
6	Adjusted capital	1429	677	743	3	(412)
7	Total deposit	16557	15036	10506	9187	8500
8	Total investment	13095	12364	6742	5152	5820
9	Investment per branch	131	187	118	65	77
10	Investment deposit ratio	79%	82%	64%	56%	68%
11	Total income	1368	1456	1049	887	918
12	Income per employee	72	78	68	45	49
13	Cost of fund	838	756	575	461	453
14	Establishment expenditure	360	425	335	306	289
15	Total expenditure	1198	1181	910	767	742
16	Cost of fund per branch	8	11	10	6	6
17	Net profit	170	275	139	120	251
18	Dividend	21%	Nil	10%	Nil	Nil
19	F. Ex. Business imports	17370	18082	9114	10176	6180
20	F. Ex. Business exports	14469	12651	5181	4529	1450
21	No. of branches	100	66	57	79	76
22	Total manpower	1903	1856	1540	1948	1855
23	Manpower per branch	19	28	27	25	24

Source: Rahman op cit.

Table 6.5: Annual Growth Rates for Some Key Variables of Selected Islamic banks (1990-94 and 1994-98)

Bank	Total equity			Total deposits			Total investment			Total assets			Total revenue		
Bank	90-94	94-98	90-98	90-94	94-98	90-98	90-94	94-98	90-98	90-94	94-98	90-98	90-94	94-98	90-98
RBIC	7.7	7.5	7.6	13.9	7.7	10.8	12.0	7.3	9.6	11.8	7.1	9.4	0.5	11.2	5.7
KFH	14.4	21.0	17.6	2.7	3.3	3.0	9.9	6.2	8.0	4.2	6.2	5.2	11.2	11.8	11.5
BIBB	0.2	3.1	1.6	-12.2	5.5	-3.8	-10.5	3.8	-3.6	-9.3	5.1	-2.3	14.9	23.3	19.0
BIB	17.6	2.4	9.7	5.8	4.6	5.2	7.1	4.5	5.8	6.7	4.5	5.6	-2.0	11.9	4.7
FIBB	16.3	5.4	10.7	5.2	4.3	4.7	4.3	4.8	22.6	31.4	-8.8	9.5	23.9	2.8	12.8
FIBE	-15.2	12.2	-2.4	-2.4	5.6	1.6	4.5	9.3	6.8	-1.2	5.1	1.9	-13.8	17.1	0.4
DIB	8.0	34.1	20.3	17.0	6.9	11.8	12.2	9.7	11.0	13.8	9.2	11.5	14.4	8.6	11.5
JIB	32.2	6.4	18.6	22.0	5.2	13.3	21.2	6.5	13.6	21.9	5.1	13.2	17.8	0.6	8.9
QIB	-1.3	11.9	5.1	6.2	4.1	5.1	10.4	3.6	7.0	11.7	4.1	7.8	2.9	12.5	7.6
IBBL	12.1	25.2	18.5	18.5	13.4	15.9	21.4	9.3	15.2	18.8	13.3	16.0	12.0	14.0	13.0
BIMB	24.1	30.8	27.4	21.1	-2.4	8.7	21.7	1.3	11.0	21.5	3.3	12.0	19.9	7.6	13.6
BTFH	-12.1	35.4	9.1	20.1	9.8	14.8	14.8	12.0	13.4	10.0	10.7	10.4	49.9	-27.9	4.0
Simple Av.	8.7	16.3	12.0	9.8	5.7	7.6	10.7	6.5	10.0	11.8	5.4	8.4	12.6	7.8	9.4
Wt. Av.	7.9	12.6	10.2	8.8	5.7	7.2	11.3	6.9	9.1	9.3	6.4	7.8	11.2	3.7	7.3

Source: *Rahman op cit.*

Table 6.6: Percentage Rate of Return on Assets (ROA) and Rate of Return on Equity (ROE), Islamic Banks Internationally, 1990-98

	ROA		ROE	
	1990-94	1994-98	1990-94	1994-98
RBIC	3.8	3.7	25.9	25.6
KFH	0.4	2.2	6.6	29.3
BIBB	1.2	2.4	3.6	7.3
BIB	0.9	1.1	10.8	11.1
FIBB	5.45	4.9	16.8	15.9
FIBE	0.2	0.1	3.7	1.3
DIB	0.5	0.6	8.7	8.5
JIB	0.9	0.8	19.2	11.3
QIB	0.4	1.1	-2.3	16.4
IBBL	1.4	1.4	32.9	28.8
BIMB	1.1	0.9	13.2	13.2
BTFH	1.8	1.3	42.9	38.3
Simple Average	1.9	2.3	19.9	22.1

Source: Rahman, op cit.

On an epistemological level of thinking we should note the nature of the Islamic rate of return as opposed to the conventional conception of the rate of return. The Islamic concept of the rate of return does not solely depend upon monetary return but also includes social satisfaction drawn from obeying the Tawhidi law. The objective of the investor and the consumer is not to earn the highest rate of return on their outlay of funds. Rather it is to combine the material

reward with the Islamic values emanating from a Shari'ah type project. In the X-efficiency sense the total rate of return as the compound function of the private and social rate of return in the Shari'ah perspective. Such a concept of the total rate of return in the Shari'ah sense ought to guide the project evaluation and calculation of returns of an Islamic bank.

CHAPTER 7

A MONETARY SYSTEM WITH 100 PER CENT RESERVE REQUIREMENT AND THE GOLD STANDARD

In the economic literature exogenous money and endogenous money are defined in the following way (Desai, 1989): Say the money aggregate M is related to three variables, x denoting price, y denoting output and z denoting other variables. M is endogenous if the following circular relations hold and are both explainable as well as estimable:

$$M = f1(x,y,z); \quad X = f2(M,y,z); \quad Y = f3(x,M,z); \quad Z = f4(x,y,M) \qquad (7.1)$$

These relations between the endogenous (circularly related by causation) variables would show strong endogeneity if the estimated relations are statistically significant and thus lead to robust predictions of any one variable with respect to the other ones. Otherwise, the relationship is weakly endogenous, differentiated in reference to given levels of statistical significance. On the other hand, if one of the relationships in (7.1) is violated or is not estimable then the system is exogenous and this independence between the given variables also causes independence of the monetary aggregate from the other variables in the system of relationships.

Choudhury (1997, 2001) expanded the system (7.1) to show strong emdogeneity by making 'z' as a knowledge variable that is causally related to and thus enacts the causal relationship between all the variables. The origin of 'z' as knowledge variable in this sense of its universality and interconnectedness influencing all the variables is a substantive issue of an epistemological nature in Islamic socio-scientific theory. Within this broad area, money interrelates with x and y through their causal relationship with z as the knowledge variable. The result is a knowledge-induced circular interrelationship between x, y in money-

economy interrelated endogenous system. Thus endogenous relationships between money and the real economic variables x and y through the primal role of the knowledge variable in the system is a matter of substantive conceptualization and application that demands structural changes of a normative type involving polity-market interaction and all that this involves in a knowledge-induced evolutionary general equilibrium framework of political economy (Choudhury, 1996).

Choudhury (1991) has also shown that the strongly endogenous monetary relationship can exist under the necessary and sufficient conditions of, (1) a knowledge-induced evolutionary system of interactive, integrative and dynamic interrelationships (referred to interchangeably as the IIE-process or the Shuratic process, briefly explained below) and (2) a 100 per cent reserve requirement system backed by the gold standard in the knowledge-induced evolutionary system of political economy. These are substantive concepts that will be explained briefly now to lead the chapter to its principal objective.

Objective

The principal objectives of this chapter are first, to set up the money-real economy relationship in the light of the Tawhidi epistemology of the knowledge-centered general system of relationships, in which is money, the real economy and other variables. Secondly, we will show that the money-real economy causal interrelationship are possible in the presence of a well functioning 100 per cent reserve requirement system with the gold standard. We will show that in order to render the 100 per cent reserve requirement with the gold standard in Shari'ah perspective the background institutional perspectives need to be based on the knowledge-centered worldview. We will invoke a number of examples to show the prospect of endogenous money in establishing economic stability and social wellbeing in both the closed and the open economy. Finally, the conceptual ideas

and the factual examples presented in this chapter will be followed by certain policy implications showing how the stability between money and real economic activity, economic integration and self-reliant development arise from the circular causation of Shari'ah-recommended spending as opposed to withdrawal by saving.

Definitions

In the language of the 100 per cent reserve requirement system Y prevails over i. The implication is that the function of money is understood simply in terms of its relation with Y in the expression, $M = M(Y)$. This expression can be further extended by including a rate-of-return, $r(p)$ on Y as a function of its price p. Now, $M = M(Y,r(p))$. But the way that $r(p)$ arises is of a substantive nature, which we will examine. By extending to vector variables $(Y,r(p))$, e.g. including real economic activity (X), economic integration (Y) and respective rates of return, we write,

$$M = M(Y,r(p)) \tag{7.2}$$

In this form of the money equation resembling the quantity theory of money and prices, money denotes the total value of spending. Thus the flow of money is equated to the value of resource mobilization into Shari'ah approved directions.

Furthermore, spending in the Shari'ah recommended market activities is found to be the source of economic stabilization, economic growth and social wellbeing. The last concept was explained in terms of the principle of universal complementarities between knowledge-induced goods and services, which in the case of expression (7.2) are money, output and real rates of returns in terms of exchange prices.

As one example of the form for expression (7.2), the total spending variable S can be related to real output by the equation,

$$S = A.(Q/p)^a,\qquad(7.3)$$

where, Q denotes nominal GDP; p denotes the price level; A is a constant; a and b are spending elasticity coefficients of output and price level.

Expression (7.3) is written in terms of growth rates as,

$$g_s = a_1.g_Q + c. \ g_u\qquad(7.4)$$

where, g_s denotes the growth rate of spending;

  g_Q denotes the growth rate of output;

  g_u denotes the growth rate of the random variable.

It is known that the real aggregate demand (spending) function would be flatter than the supply curve of real output. Hence, $g_s < g_Q$. Therefore, the rate of growth of real output growth is expected to be higher than the real spending rate.

The above result is affirmed by Metwalli (1989), who found statistically significant relation between real output growth and investment growth, investment being the second major component of total spending in the aggregate demand function. Since real output growth rate is an indicator of real productivity growth we conclude that inflation is checked when the rate of growth of real productivity exceeds the rate of growth of spending and which in turn is a significant positive function of real M1.

Interest Rate Effect on Money Supply

In reference to Chapter 5, parts of which are reproduced here, Metwally estimated that the rate of interest has a significantly negative relationship with the rate of growth of money demand (M1). Now by combining the above results we deduce the following results:

$i\downarrow\Rightarrow$ Spending $\uparrow\Rightarrow$ Investment $\uparrow\Rightarrow$ rate of return, r increases and stabilizes $\uparrow\Rightarrow$ stability in M1$\uparrow\Rightarrow$ inflation stabilizes.   (7.5)

Expression (7.5) can be extended to the following circular relationship under the effect of a sustained reinforcement of the result of (7.4) on the basis of preferences to spend in 'goods things of life' as the Qur'an encourages spending in 'moderation'.

Stable r $\Rightarrow$ inflation stabilizes $\Rightarrow$ further spending $\uparrow\Rightarrow$ M1$\uparrow\Rightarrow$ circular causation
(7.6)
A strongly endogenous relationship in the circular relation underlying (7.6) is proven by the 95% level of significance for the estimated coefficients in Metwalli's regression equations.

The continuity of the circular causation in expression (7.6) would depend on the formation of preferences of productive spending in accordance with Shari'ah, that is in accordance with the usage of Shari'ah financial instruments that generate complementary relations between money and the real economy and thus bring about linkages in the general equilibrium system of interaction, integration and creative evolution of the money and spending variables. The preferences so formed are carriers of the knowledge formation in the large general

equilibrium system of interrelations. The final implication then is that Metwalli's results, which were time-dependent regression estimation, do not produce the circular causation as we have implied out of the first round in the one-directional results of expression (7.5). Only recursive continuity of knowledge formation can regenerate the process shown in expression (7.6). This requires institutional sensitivity to the Shuratic process in the case of the money-real economy linkage issues.

Briefly on Issues Relating to 100 Per Cent Reserve Requirement and the Open Economy

Prices and rates of return in the 100 per cent reserve requirement monetary system are productivity driven within a complementary framework of factor utilization. Since the rate of growth of quantities of currency money matches with the rate of growth of output and is functionally related with the total productivity in terms of factors of production, therefore, the trade sector becomes a component of this total relation. Now the price of exports relative to the price of imports, which is defined as the term-of-trade, is driven by the same kind of complementary consideration in the production menu. The exchange rate as the relative price of a national currency is simply the relative price of exported-to- imported goods and services. This is productivity driven in the 100 per cent reserve requirement monetary system relating currency money to the real economy. Hence, the exchange rate itself is productivity driven. Policy regarding monitoring the exchange rate is not independent of the money-real economic relationship. The exchange rate in this sense remains in a state of float depending simply on the market-institution interlinked capability of reinforcing the knowledge induction of the 100 per cent reserve requirement monetary system.

We can prove the market-institutional driven nature of relationship between exchange rate, e, and the terms of trade, t, in terms of the export prices, p(X), import prices, p(M), with X as exports and M as imports.

e = Currency (national)/Currency (international)

= value of spending in exports/value of spending in imports

= p(X).X/p(M).M

= p(X)/p(M).(X/M)

= t.(X/M)

Finally we obtain, e/t = X/M. (7.7)

The relative price, e/t is driven by market-institution interrelationship in the 100 per cent reserve requirement monetary system. This feature is shown by the presence of X and M.

The Question of Global Stability by Means of the Shari'ah-driven 100 per Cent Reserve Requirement Monetary System

It is clear that the structures of the 100 per cent reserve requirement monetary system with the gold standard in the framework of its Tawhidi epistemological origin will not be easily adopted by the rest of the world other than the Ummatic one. Its adoption for the rest of the world will be barred by its rejection by the non-Islamic world to cling to the interest mechanism in economy-wide policy formulation, planning and socioeconomic activities. The presence of interest rate in financial transactions and its link with economic activity will forever cause instability by way of speculation, increasing risky financial and social costs, lower productivity and high risk over all. Such features are today gripping the global financial and economic order by increasing economic, financial and political disorder.

While the setting up of the 100 per cent reserve requirement monetary system will increase the stability, social wellbeing and prosperity of the Ummah, this will also cause a natural trend in the Ummatic transformation to become more integrated and self-reliant in trade and development. The repercussions of such an Ummatic transformation will be felt by the non-Islamic world, though the transformation will come about by a blending between market and institutional forces. Trade will thus be increased within the Ummah. This will cause trade diversion away from the non-Islamic world. It is therefore impossible that the economic stability of the 100 per cent reserve requirement expected within the Ummah will be transmitted to the non-Islamic world.

The above trade effects are felt both in the export and import sides. Export effect is shown by the shift in the Ummatic inter-communal supply curve. Import effect is shown by the Ummatic demand shift. On the side of trade with the outside world an increasing product diversification and output expansion will follow the Ummatic transformation. There will be less dependence on import from the outside world. Thus, on the matter of imports from the other world there is a reduction by the degree of product diversification. Hence, higher terms of trade are maintained while preferential trading arrangements exist within the Ummah. The role of monetary and financial policy harmonization in the 100 per cent reserve requirement monetary system and the institutional transformation along with the impact of human resource development will contribute to this momentum of change.

The above kinds of changes arise purely under market-driven forces of inter-communal trading and development arrangement. The shifts in the supply curve and the demand curve during post-Ummatic transformation and the stabilization of term-of-trade globally are due to developmental impetus within the Ummah in relation to the global order.

Conclusion

The universal paradigm for all people, civilizations over historical times has been the praxis of unity of knowledge. In the Western World this unification principle has been premised on the material forces of nature and systemic symbiosis (Barrow, 1991). In Western and other metaphysical thinking the same idea of unification has been premised on a numinous concept of divine unity without a cognitive and material function of that unity in experience. In Islam divine oneness is the source of unity of knowledge in terms of laws and guidance from which are derived rules, instruments and institutions for various aspects of the material and cognitive experiences premised on unification. The systemic symbiosis that we have explained in terms of the principle of complementarities with diversity is brought about by the use of instruments and institutions that carry the knowledge-centered worldview for realizing an extensively relational experiential order. Here the interrelationships between all subsystems are induced by the same unique praxis and methodology of the circular causation and continuity model of interaction, integration and creative evolution.

Of many such knowledge-centered systems of unity of knowledge explainable by the praxis of divine oneness and its world-system is the paradigm of 100 per cent reserve requirement monetary system in which money and its function are redefined. Money is now a stock of currency produced by the central bank and transacted through commercial banks for financing real economic activities. Money is thus equal to the value of total spending in the economy-wide sense. This concept of money negates savings by resource mobilization in every way recommended by Shari'ah for establishing moral and social meaning in terms of the wellbeing criterion as the goal.

Money and asset valuation in the 100 per cent reserve requirement monetary system is further reinforced by an asset backing, which we have treated as the gold standard. The development currency denomination in terms of the gold standard was explained.

For the Muslim world today a re-birth of the 100 per cent reserve requirement with the asset backing of the gold numeraire is an essentially revolutionary precept. This *Idea* emanates from the Qur'an vis-à-vis the Qur'anic injunction on trade versus interest. Furthermore, the open economy implications of such endogenous money-real economy linkages are profound. They give important lessons on the political economy of global relations between the Muslim World and the non-Muslim World using an Ummatic transformation process with the 100 per cent reserve requirement monetary system, if this was to come about in the near future.

The same kind of a monetary system was blessed by the Prophet Muhammad to succeed (Allouche, 1994). It is in the books of the early Islamic writers on the worldly application of Shari'ah (see Islahi on Ibn Taimiyyah and Ibn Qayyim, 1988). Today it stands as the sure revolutionary way for returning a great portion of the human kind back to regimes of long-term sustainability and stability with extensive wellbeing in focus. Such a comprehensive political economy of Ummatic transformation with 100 per cent reserve requirement monetary system must be taken up as an immediate program for discourse and implementation at all levels across the Muslim World.

It is not unlikely that in a world of bloc regional currencies and the clamor for a single global currency (see Chapter 10) there are rumblings of a return to the fixed exchange rate regime. This will automatically be efficacious if the fixed exchange rate regime is tied to a return to the gold standard and to a new way of understanding and implementing monetary policy while not neglecting the importance of fiscal policy for government role in ethical development.

CHAPTER 8

MICRO-MONEY AND REAL ECONOMIC RELATIONSHIP IN THE 100 PER CENT RESERVE REQUIREMENT MONETARY SYSTEM

The principal objective of this chapter is to derive a simulative model explaining the interrelationships between money, real economy, prices, economic growth and social wellbeing. We argue that such a relationship between money and the real economy cannot be explained by the existing macroeconomic conception of monetary relations, and thereby, by the institutional structure of monetary policies in the macroeconomic framework. Substantial changes that follow by redefining the money-real economy relations in view of market forces and institutional structure bring forth the study of specific linkages between money and resource mobilization within the market order. Here a substantive study of micro-money appears.

Furthermore, in the Islamic framework of reference we find that the substantive nature of the model of money and real economy relationship is derived from the Islamic epistemological foundations. We will elaborate upon this epistemological derivation to establish our money-real economy model. We will show thereby, that the most appropriate monetary system that results in the case of the micro-money and real economy interrelations is the 100 per cent reserve requirement monetary system backed by the gold standard (Dinar).

This chapter is divided into the following sections: Section 1 gives a brief review of the literature on the gold standard from which we derive the evolution of micro-money in the history of economic thought. In Section 2 we derive our own specification of micro-money concept after noting its context within the quantity theory of money. In Section 3 we formulate the general epistemological background in the light of which our model of micro-money and its real economic

relations is established. In Section 4 we explain some of the glaring methodological contrasts in the concept of micro-money between Islamic political economy and mainstream economic thought. In Section 5 we connect the micro-money concept with a 100 per cent reserve monetary system backed by the gold standard (Dinar). In Section 6 we point out other kinds of endogenous micro-monetary *numeraire* suggested in recent times (Choudhury, 1998). In Section 7 we conclude with certain policy recommendations in favour of micro-money within the context of 100 per cent reserve requirement monetary system.

A Brief Review of the Literature: Gold Standard and the Nature of Relationship between Money and Market Exchange

Within the economic argument of the classical type the gold standard was thought of as any similar commodity that could be freely transacted in the market system setting its own prices without government intervention, and thereby, causing a trend in the general price level in goods and services in exchange (Block, 1999). The gold standard was thus thought to be behind the social philosophy of a free market and private ownership economy in which most importantly the individual made free choices without a state intervention. It is pointed out that over the long-run trend in prices and real transactions determined by the gold standard there existed a profound stability in the gold price level despite certain short-run exceptions.

Consider the disaggregate version of the equation of exchange (Friedman, 1989, pp.1-40),

$$M_1 V_1 + M_2 V_2 = PT = Py \qquad (8.1)$$

Where, M_i is the money in circulation in the ith goods basket.

V_i is the velocity of money in circulation.

P is the general price level of goods and services transacted in the economy.

T is the number of transactions performed by the circulation of the quantity of money, $M_1 + M_2$.

y is per capita national income.

i =1,2 goods or markets.

The identity (8.1) can be generalized to any number of specific transactions including the market for securities. The resulting quantity of money expressed as the demand for money, M_i^D, then is,

$$M_i^D = P.D(y, w, i_1, i_2, u), \qquad (8.2)$$

where, w denotes the capitalized wealth.

   i_1 denotes interest rate on money assets.

   i_2 denotes interest rate on securities.

   i_1 and i_2 can be furthermore considered as term structures of interest rates over different kinds of assets over time.

   u denotes all other variables, most importantly non-bank preferences, as in the 'real bills' hypothesis;

Definition and Analytics Concerning Micro-Money

A generalization of the disaggregate forms of the expressions (8.1) and (8.2) brings us to the definition of micro-money. Micro-money is the money in circulation specific to particular goods, services, assets, also clientele and thus multimarkets. Now to understand the meaning of micro-money we must turn firstly to the specific markets for real transactions and to the preferences of the non-banking agents to determine the quantity of money that needs to be in circulation to finance such real transactions.

Our definition of micro-money requires a broader deconstruction of the expressions (8.1) and (8.2) of the quantity theory. The resulting specification appears as follows:

$$\Sigma_i M_i V_i = \Sigma_i P_i y_i \tag{8.3}$$

Where, P_i denotes price in the ith market;

y_i denotes per capita income in the ith market;

$i = 1,2, \ldots, n.$

The expression like (8.3) has not appeared in the equation of exchange particularly due to the inability in defining the right hand side in terms of a total quantity of money in circulation. However, by allowing for a large number of multimarkets with borrowing in the Walrasian sense of the entire economy being viewed as the sum total of such equilibrium multimarkets, equilibrium in the micro-monetary sector will cause a simultaneous equilibrium in the corresponding real goods market (Henderson & Quandt, 1971). Expression (8.3) now devolves into,

$$M_i V_i = P_i y_i, \text{ for each } i = 1,2,\ldots,n \tag{8.4}$$

We re-write (8.4) as, $M_i V_i / P_i y_i = M_j V_j / P_j y_j.$

That is, $\quad M_i V_i / M_j V_j = P_i y_i / P_j y_j = (P_i / P_j)(y_i / y_j) . \tag{8.5}$

Expressions (8.4) and (8.5) convey the meaning that for the total volume of micro-money in financing the nominal value of transactions in the ith market, relative prices in money terms between the markets must remain stable and the markets must be in equilibrium. This result would assume well determination of

the agent-specific preferences as in the case of the 'real bills' hypothesis. But the same result on the existence of pre-determined stable and equilibrium relative prices negates the complex nature of intertemporal price and quantity relations as explained by Hayek's (1990, 1999 reprints) analysis of intertemporal resource allocation. Consequently, the above kind of deconstruction of the exchange equation of the quantity theory of money does not contribute to any fresh understanding of interaction in multimarkets with the presence of money prices affecting exchange prices in terms of the influence of micro-monies in those markets.

From the above discussion we note that in the quantity theory of money both the analytical as well as the institutional contexts of micro-money fall short of their proper definition with respect to real economic transactions. The analytical perspective shows a serious problem of aggregation in the micro-money model of the quantity theory. The institutional perspective points out the need for a new arrangement between the central bank, the commercial banks and markets within a gold standard and with the full force of market exchange determining the micro-money and real economic interrelationships. We now turn to these issues.

An Epistemological Model of Micro-Money and Real Economic Transactions in Islamic Perspective

The institutional and analytical problems of micro-money in the quantity theory of money leads us to investigate whether these problems can be addressed by mainstream economics or is another methodology required. The quantity theory as formulated being an identity, it cannot answer the following question: Does money affect price level or does the price level affect money stock in circulation through the output effect (Laidler, 1989)?

Between the contending approaches we find that money is treated in the mainstream literature either as an exogenous asset created by the central banking authority to establish price and output stabilization or when there exists endogenous feedback between money and economic activities the exact nature of the price-money causality is not determined. Furthermore, in all such feedback models there exists the permanent prospect for inflationary pressure, as spending can forever cause upward pressure on output and prices. In the end, the question of stable price and output effects in relation to the feedback between money and real economic transactions remains unanswered.

A return to the gold standard with micro-money in a 100 per cent reserve requirement monetary system must analytically answer and realize this very missing phenomenon of the money-real economy linkages in the quantity theory of money and prices. Our critical project is now explained by the building blocks of an alternative methodology and its institution-economy consequences.

The Tawhidi Epistemological Worldview of Unity of Knowledge in World-Systems

Our epistemological premise commences from the following argument. Unity of systemic knowledge as a relational worldview can be realized by means of extensive interaction, linkages, complementarities and their dynamic sustainability according to certain precise economic instruments and preferences (behavior) that are formed within a political economy that recognizes unity of knowledge as its epistemological premise. Parting away with this critical foundational assumption of unity of knowledge and its attributes in terms of specific instruments, behavior and methodology will leave any system of money-real economy relations to evolve by the force of uncontrolled anomie, thus leaving indeterminate the money-real economy speculative feedback unchecked.

In this chapter instead of divulging the details of the process model of interaction, integration and creative evolution (IIE-process) premised on the unity of divine knowledge that has been developed in details elsewhere (Choudhury, 1995), we will briefly delineate and use it for formulating our money-real economy model.

Our focus now is on applying the process model of generalized systems as reproduced below from Chapters 1 and 2:

Primal →	Derivation→	Process of →	Post-evaluation→	Evolution→....→	Closure
stock of	of primal	deriving	by means of	of similar	in the very
knowledge	knowledge	knowledge	the social	processes	large scale
- flows	-flows by		wellbeing	(IIE-process)	universe
			function	of the shuratic	
				process	(8.6)
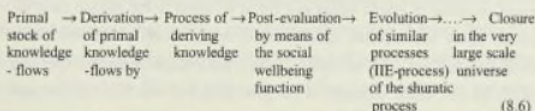
In the above string the primal stock of knowledge is the Tawhidi epistemology. It explains the fundamental Qur'anic axiom of divine oneness and assumes a formal relation in the system (Choudhury, 1995, 1999, 2000a). From the Tawhidi premise is derived fundamental Shari'ah knowledge as primal knowledge-flows. Knowledge-flows so derived at once unravel the spontaneous and pervasive unveiling of divine oneness in the all-experiential systems. This is the start of the process of deriving knowledge in relation to the unity of the experiential systems. We will denote the knowledge-flows by{θ} and is derived by the exercise of the discursive IIE process, which in accordance with Qur'anic terminology is also termed as the Shuratic discourse at the level of deriving Shari'ah rules from the episteme of Qur'an and Sunnah. From the organization of the world-system in relation to the unity of knowledge-flows comes about the post-evaluation of this unity of knowledge by means of the wellbeing criterion used by the discursive system. We call this criterion as the social wellbeing function. From the post-evaluation of unity of knowledge in the context of the

specific problems at hand follow similar relations in continuity until the completion of the original stock of knowledge is realized in the Hereafter. Thus we realize closure in the very large-scale universe.

Now to specify, we can imagine two similar strings of relations similar to (6), one for money and the other for real economic activities. This means that in the epistemological sense, money is a creation of Allah for its purposeful use in attaining social wellbeing. Likewise, the economic order is patterned for the same purpose according to ethical values that are to be found in the Islamic Law, the Shari'ah. These two together, namely money-real economy relationship along with institutional guidance as complementary pairs follow from the Qur'anic principle of the 'paired universe' in the good things of life. The IIE-processes (Shuratic Processes) within and between the money-real economy relations would now proceed in the way explained by expression (8.6).

The functional mappings existing between extensive interactions between money and real economy now generate compound functions (Choudhury, 2000a). The social wellbeing criterion function resulting from pervasive interaction across the interactive, integrative and evolutionary (IIE) branches of (8.6) in the two interconnected levels of money and the real economy is represented by non-linear and complex aggregation of the separate wellbeing functions belonging to these branches at their nodes.

The inter-systemic interactions, integration and evolution between money and the real economy generate a circular causation and continuity model of unified reality. Such an IIE-worldview makes risk-diversification, product-diversification, institutional development and participation among the agents, variables, resources and their relations to acquire permanent consequences of evolutionary learning. Knowledge augmentation by means of new learning

constantly reduces the risk and unit cost of production and investment through product-, risk- and economic- diversification in the framework of the unity of knowledge as signified by the principle of universal complementarities across diversity.

The Epistemologically Derived Specific Model of Money-Real Economy Relations

It is noted that every variable of the wellbeing function is of the micro-type. Aggregation to higher levels of ethical decision-making is explained by IIE-type compound mappings that result in non-linear multiplicative indexes. Although the IIE-expression (6) is now generalized to all types of socio-scientific problems in the framework of the Tawhidi unity of knowledge, its specificity to the money-real economy interrelationship is now formulated. The simulative form of the money-real economy relationship is explained by the following system of relationships:

$$\text{Simulate } \{\theta_{k,l}\} \ [W([\theta_{k,l}].[X_{k,l}(\theta_{k,l})])] \tag{8.7}$$

Subject to the *circular causation recursive relations*,

$$X_{k,l}(\theta_{k,l}) = f_{j,k,l} (X_{j,k,l}(\theta_{j,k,l})), \tag{8.8}$$

$$\theta_{k,l} = g_{j,k,l} ([\theta_{j,k,l}].[X_{j,k,l}(\theta_{j,k,l})]) \tag{8.9}$$

i,j (i≠j) = 1,2,...;

k = monetary system; l= real economy.

All variables, $\{X_{k,l}, \theta_{k,l}\}$ are to be taken in vector notation. $f_{j,k,l}$ and $g_{j,k,l}$ are recursive relations of the circular causation model over interaction (i) within and between the k,l-systems.

Specifically, we can write for money and two markets both endowed with a limiting consensual value of $\theta_i = \theta^*$ over k and l,

$$X_{kl}(\theta^*) = (M_{kl}, p_{kl}, y_{kl})[\theta^*], \tag{8.10}$$

k,l =1,2 as k = micro-money specific to two categories of spending and valuation in markets, l = 1,2.

The nature of complementarities across diversity and dynamic evolution in the wellbeing function is causally linked with complementary relations between every one of the variables in the vector (8.10). This means that ethicizing markets emerge by complementary spending in real goods and services, whose valuation is shown in terms of micro-money supporting such complementary spending patterns. Likewise, the existence of regimes of dynamic basic needs as life-fulfilling goods cause complementary outputs in the two sets of goods and services. There is no substitution now, only relative choice within a discursive framework interlinking money and real economy through the medium of the Shuratic Process, as explained earlier.

Such unifying relations among the variables require appropriate development and policing of money-market linking instruments. Examples of such instruments are valuation in the absence of interest-based discount factors, equity and profit-sharing joint venture instruments revolving around economic cooperation, trade financing and secondary instruments that revolve around these principal ones. Above all, there is the central role played by human resource development along the lines of the Ummatic transformation in the light of the Tawhidi worldview. All of these knowledge-inducing factors and instruments are comprised in the θ-induced policies and preference changes determined in and by the IIE-process.

When an evolution from lesser to higher regimes of micro-money and real economy linkages are being established in the knowledge-inducing systemic change, θ-induced policies and preference changes determined in and by the IIE-process are once again active in progressively reducing the 'marginal substitutions' between the goods and services and thus creating greater complementary relation between them. The unwanted goods and services are thus phased out by the θ-induced policies and preference changes determined in and by the IIE-process. In this way, the progressive evolution of the interactive and integrative processes reflect growing unification and responsiveness between the variables in a regime of change characterized by convergence between the growth rates of spending and the quantity of micro-money. This is a sure sign of progressive reduction of instability and inflationary pressure in the economy with pervasive money-real economy linkages. With gains in output arising from the side of technological change, organizational efficiency and accentuated mobilization of resources (spending) the money-economy interrelationship would yield the growth rate of output to exceed the growth rate of spending and price level. Thereby, a sustained increase in real output growth is maintained both by the endogenously allocative and the X-efficiency conditions of the money-real economy interrelationships.

We can now write down the complete form of the money-real economy relationship in the light of the simulative wellbeing goal of the knowledge-centered worldview of Islamic political economy. Because of the nonlinear aggregation due to interaction and relational complementarities that are embodied in the wellbeing function, we take it in the multiplicative form denoted by intersection $\cap_{jkl}$ over j variables interacting across (k,l)-systems.

$$\text{Simulate } \{\theta\} \ W(\theta) = \cap_{jkl} X_{jkl}{}^{a_j}, \tag{8.11}$$

k, l = 1,2 are the money and economy as the two interactive and co-determining systems. $X_{jkl} = \{M_1, M_2, p_1, p_2, y_1, y_2\}$ is the vector of various variables pertaining to markets that are interconnected with the micro-money flows. Because of the knowledge-inducing process of the IIE-kind all variables including the a_j coefficients are θ-induced. We have taken this θ-value in the limiting form. X_{jkl}^* are thus the indexed variables $\{M_1, M_2, p_1, p_2, y_1, y_2\}$ by the elasticity coefficients a_j. j ranges over the given variables.

The recursive relations according to the circular causation system are,

$$M_1 = f_1 (M_2, p_1, p_2, y_1, y_2) \tag{8.12}$$
$$M_2 = f_2 (M_1, p_1, p_2, y_1, y_2) \tag{8.13}$$
$$p_1 = f_3 (M_1, M_2, p_2, y_1, y_2) \tag{8.14}$$
$$p_2 = f_4 (M_1, M_2, p_1, y_1, y_2) \tag{8.15}$$
$$y_1 = f_5 (M_1, M_2, p_1, p_2, y_2) \tag{8.16}$$
$$y_2 = f_6 (M_1, M_2, p_1, p_2, y_1) \tag{8.17}$$
$$\theta+ = f_7 (\theta, M_1, M_2, p_1, p_2, y_1, y_2). \tag{8.18}$$

All of the above variables are recursively θ-induced through the IIE circular causation processes. The sign '+' indicates a forward recursive value upon the lagged values of both the institutional Shuratic policies and preferences and the socioeconomic variables. The recursive lag indicated by '-' is shown to govern all the variables inside the bracket. All the functions denoted by f's are nonlinear.

In a progressively transforming Islamic money-real economy complementary system the coefficients of the relationships are expected to be

either positive or tending towards positive signs out of progressively weakening negative relations. This signifies the passage from a non-learning system, such as the one characterized by the neoclassical marginal substitution methodology (Shackle, 1972), to regimes of increasingly pervasive complementarities as signified by the Shuratic Process or equivalently the IIE-process methodology.

The above trends translate into the following analytical results. In the evolutionary life-fulfilling regimes of development promoted by the Shari'ah preference changes and use of instruments selected out of discourse and extensions, p_i and y_i denote prices and outputs of such goods, respectively. Thereby, (p_iy_i-cost of production) are distributed among participants in a co-operative Islamic political economy. This implies that the cost of production is also shared and no opportunity cost of production concept can therefore remain.

Spending in the production and consumption of y_i at prices p_i is financed by M_i. Thereby, some of the spending flows between production value and consumption value of interrelated goods and services. The equations (8.12)-(8.18) bring out this kind of interdependence. Such interdependence follows the circular causation methodology as epistemologically derived from the extended form of expression (8.6).

Equations (8.12) and (8.13) are the micro-money equations for the quantity of money in circulation in multimarkets. Note that interest rates are logically ruled out in this system of relations by the absence of the opportunity cost of money and real goods and services as is otherwise expressed by their relative prices in neoclassical economic theory. Marginal substitution hypothesis is replaced by the endogenous nature of micro-money pursuing spending in interconnected multimarkets. The circular causation process in simulation by the

IIE-methodology sustains the evolution of the system of diversity leading to pervasively complementary relations through the Shuratic Process.

We note from the system of complementary relations (8.11)-(8.18) that well-defined circular causation exists between money and the real economy. That is to say money is truly micro in nature as it is in pursuit of financing the Shari'ah recommended life-fulfilling basket of goods and services by means of specified instruments that promote ethical values and complementarities between ethical possibilities. This makes money the valuation medium for multimarket spending. Subsequently, new rounds of multimarket spending become the springboard for further quantity of micro-money in the economy.

The concept of demand and supply of money now loses significance. There is simply a quantity of currency as money available from the central authority to match up a reflective spending demand in Shari'ah-recommended life-fulfilling goods and services. Our old ideas of money as medium of exchange and store of value lose meaning in this case. Since money has no market of its own it cannot be a commodity or a factor of production. Money has no intrinsic use price. It simply comes into use after the demand signals are provided from the spending side. Consequently, money stock cannot be formed by savings in such a micro-money and real transactions linkages. Monetary policies in this system cannot logically promote savings. Interest-based instruments and speculation cannot occur because of the absence of short-term rates of interest. Spending is a source for making production a diversity resulting in the ultimate reduction of cost of production by means of risk and product diversification. Uncertainty is thereby controlled and the spending variable causes the growth of money-real economy variables. Stabilization and sustainability are realized by the principal action of the circular social causation of the knowledge-induced process model

across the 'wider field of valuation' in dynamic life-fulfilling regimes of development (Myrdal, 1968; Choudhury, 1997).

From Methodology to Methods: Contrasting the Islamic Micro-Money and Real Economy Simulation from the Mainstream Economic Methods

Apart from the causality and aggregation problems of the equation of exchange in the quantity theory of money and the consequential inability to use this equation for developing the idea of micro-money, there are other problems that fly from the epistemological side of this body of theory into its methods. We will consider one such other problem below.

Equation (8.1) is revisited in the form,

$$MV = Py, \tag{8.19}$$

Giving, $g_M + g_V = g_P + g_y$. $\tag{8.20}$

Now consider the micro-money version of equation (8.1). Can this be put in the form (8.20)? No. Consequently, the method of quantity theory of money in the disaggregate exchange equation does not match up the growth rates of money and of the velocity of money circulation with the growth rate of spending in multimarkets. One cannot therefore either aggregate from (8.1) into (8.19) or disaggregate from (8.19) to (8.1), no matter how appealing this would appear in the linear form. Consequently, we cannot derive micro-money stability and wellbeing results from the methodical conclusion as shown above.

The same question when inquired in the IIE-version of micro-money and real economy relations yields the following result: There is no concept of macroeconomic disaggregation of a stock of money M into its micro-monies

equating to multimarket spending. It is possible only to aggregate the micro-monies by the spending formula in particular markets. However, this would not yield the concept of the macroeconomic money stock.

For the ith multimarket,

$$M_i = Sp_i \text{ (spending in ith multimarket)} = p_iy_i + r_ic_i \qquad (8.21)$$

The intrinsic θ-value is subsumed.

$$\text{Besides, } r_ic_i = p_iy_i-\pi_i, \qquad (8.22)$$

Here r_i denotes quantity of productive factors, c_i denotes unit cost of factor use.

Thereby, $M_i = 2p_iy_i-\pi_i$. $\qquad (8.23)$

Since π_i is a proxy for wellbeing at the level of the firm or market, it is a simulated target function attaining a given value at the end of every completed Shuratic Process, as explained earlier. We can differentiate the variables in (8.23) primarily with respect to θ-values. The resulting equation is,

$$g_{Mi} = g_{pi} + g_{yi} \qquad (8.24)$$

This is the result corresponding to rates of change *with respect to the changes in* θ-*values* in any given completion of process according to the circular causation model explained in expression (8.6) or (8.10). With respect to both time variable and θ-values we must invoke the epistemological meaning that time is created by knowledge and only momentarily they are the same. This is authenticated by the Hadith al-Qudsi (divinely inspired Prophetic saying, not revelations) in which

Allah declares, "Sons of Adam inveigh against [the vicissitudes] of Time, and I am Time, in my hand is the night and day."(*Al-Bukhari & Muslim*). Expression (8.24) can thus be aggregated to maintain the equivalence between total micro-money and multimarket spending.

Policy Conclusion

Today, in the eve of a post-modernist epoch that is dawning before us, the old socio-scientific order is up for questioning and rejection in many ways. This is giving way to new epistemological roots of intellectual inquiry, discovery and innovative applications. The Muslim World today is to assess its station in this spectrum of novelty according to her own episteme of knowledge and life. Thus far she has failed miserably in all fronts and the aftermath of a global political economy of disorder and fragmentation is upon her.

Among the many issues that assume center stage in new perspectives of the globalization scene for the Muslim World, that which we refer to here as Ummatic transformation, will be the nature of money, monetary policy and institutions and their relationship with the real economic transactional basis of sustainable development. In this regard, keeping in view the micro-money and real economic interrelationships, the automatic stabilization, sustainability and wellbeing effects of such an interactive, integrative and dynamically evolutionary order and the challenging new methodology and methods premised on the unity of Tawhidi worldview, the ensuing critique of the mainstream economic order in this chapter has opened up new dimensions for serious investigation.

To attain such an Ummatic transformation we offer the following policy recommendations that emanate from this study.

1. The OIC (Organization of Islamic Conferences) with its membership is to galvanize the intellectuals, practitioners, public and private sectors and governments to establish a think tank or center/institute enabling discourse on the ways and means of putting into action a human resource development program (Choudhury & Korvin, 2001) that would develop the pragmatic understanding of the Shuratic Process of decision-making and put that into action.

2. The Human Resource Development Center on the understanding and application of the Shuratic Process methodology for Ummatic change in all fronts but with a focus on the interactive and unifying dynamic relations between trade, development and real money, must be prominent. This calls for a policy on getting the banking systems of the Muslim World to enact a program that will incrementally change the existing banking relations based on fractional reserve requirements into a 100 per cent reserve requirement monetary system with the backing of the gold standard. This monetary policy change calls for a program of establishing a monetary system that looks at the function of micro-money in terms of its direct relationship with real economic transactions. Thus all the asset valuation methods are to be changed into this kind of forward overlapping intergenerational relationship of the real linkages. Trade and development are then automatically linked up with the use of endogenous money in promoting merchandise trade and capital that have linkages directly with real sectoral activities rather than with speculative portfolio investments (Choudhury, 1998; 2001).

3. The banking community along with the national decision-makers, Muslim intellectuals and private sector practitioners are to assign a program promoting linkages between money and the real economic sectors and markets within the Muslim World over a stipulated period of time, within which a reasonable transformation into the endogenous monetary system with 100 per cent

reserve requirement monetary system would be realized. During this process of change growing linkages between effective sectors and activities should be subjected to the trading and developmental patterns on the basis of the on-going monetary transformation.

4. The Muslim World should then be developing a regional trading bloc of the Muslim countries that would ultimately enact a common monetary transformation based on 100 per cent reserve requirement with the gold standard. This would cause the exchange rates and the common tariff value of the Islamic customs union to be based on the economic and social productivity of the integrating economies and in view of their complementary resource endowments. Thus the exchange-rate setting in such a case of the 100 per cent reserve requirement monetary system would be converted into a productivity driven indicator rather than be determined by a monetary policy of the fractional reserve requirement system as the latter is conventionally treated exogenously in exchange-rate and interest-rate mechanisms.

5. Islamic banks, other banks and financing development intermediaries in concert with the national planning departments are to establish programs to jointly fund such complementary projects as an accepted focus of trade and development in the Muslim World. The Islamic Development Bank (IDB), the Islamic Chamber of Commerce and the Statistical, Economic and Social Research and Training Center for Islamic Countries (SESRTCIC) must together enable the development of such linkage programs. Such programs for developing and executing complementary projects should aim at vitalizing the private sector in co-ordination with the public sector and governments toward facilitating such developments that build on programs of linkages along lines of the dynamic life-fulfilling needs of development (Huq, 1997).

6. The dynamic basic needs regimes of development would correspondingly define the development and trade patterns of the Muslim bloc. This kind of *dynamic basic needs regime* vis-à-vis its linked manufacturing/service sectors would be a good sign in capturing today's global trend towards green industry and to keep the gaze of technological transformation on its appropriateness in this age of 'ecological revolution' (Korten, 1995). The commodity sector would then realize improving terms of trade, which is an important pre-condition for establishing the complementary relations between economic efficiency and distributive equity and between trade and development with the 100 per cent use of money in real economic activities.

7. The financing modes of the Islamic transformation process must of course be based on co-operative joint ventures (Choudhury, 2000b). Mudarabah (profit and loss sharing under economic co-operation) and Musharakah (equity participation) instruments [together as M&M] cannot continue to be understood simply as the financing instruments for specific project financing alone as they presently are. Rather, their broader meaning and effectiveness are to be realized within the foundational meaning of Islamic socioeconomic co-operation. M&M must thus be changed into policy instruments by the financial sector in concert with the central and commercial banks and the planning departments of members of the OIC. The same M&M instruments would determine the co-operative character of all other Islamic trade instruments and secondary financial instruments. This transformation can be realized through the use of a 100 per cent reserve requirement monetary system in determining the productivity driven values of exchange rates and common tariffs outside an integrating Muslim World.

8. In every area of institutional and policy changes recommended above the OIC with her sister organizations such as the IDB with the Islamic Research

and Training Institute (IRTI), Islamic Chamber of Commerce, Islamic Corporation for the Development of the private sector and SESRTCIC with its COMCEC (Committee on Commercial and Economic Co-operation) must play catalytic roles in collaboration with the governments, public sector, private sector and development financing organizations of the OIC membership. The Shuratic Process model of Ummatic change must become the human resource foundation (epistemology) for guiding the progressive Ummatic transformation. The progress of the Islamic transformation in the years to come would then see the effective interactive, integrative and dynamic evolution of the echelons of interlinked Shuratic Processes and their complementary relations in terms of policies, programs and economic transactions on all fronts. This is the essence of the complementary Shuratic Processes of the Ummah. The OIC would then need to become the Ummatic governing Shura that connects through circular causation with the hierarchies of micro-Shuras through feedback in the Ummah.

9. The centers/institutes implied above for facilitating the Shuratic transformation in the areas of trade, development, money and the real economy vis-à-vis the central role of human resource development in all of these, respecting the understanding of the Shuratic Process in action, can be housed in IRTI and SESRTCIC or they can be launched in major Islamic universities.

CHAPTER 9

AN ETHICO-ECONOMIC GENERAL EQUILIBRIUM STUDY OF LINKAGES BETWEEN MONEY, FINANCE AND REAL ECONOMY USING ISLAMIC INSURANCE

The objective of this chapter is to establish an ethico-economic general equilibrium model system interlinking the financial sector and the real economy through the facilitating medium of Islamic insurance, such as the Takaful and Re-Takaful Schemes. Besides, such a circular interrelationship between the three sectors is made to occur in a 100 per cent reserve requirement monetary system. The development of the ethico-economic general equilibrium methodology invoked here has its necessary and sufficient conditions premised on Tawhid, the unity of divine knowledge, as it is externalized into the world-system of money, finance and real economy linkage through the Islamic insurance and 100 per cent reserve requirement monetary system.

Section I of the chapter gives the background of the ethico-economic paradigm pioneered by Choudhury (see the journal entitled *Humanomics*) in which the intrinsic linkages are shown to emanate from the epistemology of Tawhid as *the necessary and sufficient condition* (NASC). Without this episteme the meaning of endogenous ethics, and thereby, circular causation relations between entities, cannot be explained. This is the parting divide between Islamic epistemological thinking on socio-scientific problems on the one hand, and all of mainstream economics and its 'Islamic economic' lineage on the other.

Section II develops the ethico-economic general equilibrium model of financial and real economies with the facilitating mediums of 100 per cent reserve requirement monetary system and the Islamic insurance of Takaful in risk and product diversification. The epistemic relations of Section I are invoked in this methodological construction of the ethico-economic general equilibrium system.

Section III introduces a programmatic and policy perspectives on realizing the functioning of the ethico-economic general equilibrium model of money, finance and the real economy with non-bank institutional role and 100 per cent reserve requirement monetary system.

Section IV is a conclusion that summarizes the findings of the chapter.

I

The Ethico-Economic Paradigm

The ethico-economic paradigm emanated from the groundwork of the journal, *Humanomics* (Choudhury, 1990) in relation to the endogenous role that policies, institutions and technology play within a pervasively interactive, integrative and evolutionary (IIE) system governed by unity of knowledge in systems (Choudhury, 1995a). Such an endogenous role is causally derived and regenerated by the continuous presence of knowledge in the ethico-economic system (Choudhury, 1995b). Consequently, the entire mainstream economic postulate of marginal substitution between competing *alternatives* becomes methodologically unviable and is replaced by the Principle of Pervasive Complementarities across Diversity of possibilities in IIE, when every such possibility is induced by the derivation and evolution of knowledge-flows. Such a contrasting principle is impossible to derive unless the epistemology of unity of divine knowledge in Islam, Tawhid, is invoked and given its functional role in the systems framework of causal interrelations.

The commencing task now is to briefly explain this epistemological worldview, from which the money-finance-real economy interrelationship with the role of non-bank financing institution will be derived. We will also establish briefly by the necessary and sufficient conditions (NASC), that in the Tawhidi

worldview pervasive complementarities with diversity of occurrences across systems of possibilities must necessarily occur. On the one side, marginal substitution between choices is impossible in IIE on methodological grounds. On the other side, the existence of pervasive complementarities is exclusively a reality of the causally unified world-system with diverse possibilities. This central difference between the world-system premised on methodological individualism, competition and independence of the entities (variables and their relations, agents and agencies) in mainstream economic thought and the co-operating relational order in Islam is a fundamental one for describing the inner workings of the two opposite world-systems.

Proof of the Necessary and Sufficient Conditions (NASC) of Unity of Knowledge in the Ethico-Economic Paradigm

Consider the following chain relation taken from Chapter 2, which is reproduced here again:

$$\Omega \to_F \{\Phi\} \to_{f^*} \{\Phi^*\} \to_\theta \{\theta\} \to_\Omega \{X(\{\theta\})\} \to_{\hat{L} \to \Omega} \text{New } \{\theta\} \to \text{continuity} \to ..\ \Omega = H \quad (9.1)$$
$$W(\theta, X(\theta)) \qquad \text{in repeated processes}$$

Primal→	Derivation→	Processof→	Post-evaluation→	Evolution→	....Continuity→	Closure
stock of	of primal	deriving		of similar		in the
knowledge	knowledge	knowledge		processes		very
- flows	-flows by			discursion	large-scale	universe

In the string relation (9.1), Ω denotes the Tawhidi epistemology. That is, Ω explains the fundamental Qur'anic axiom of divine oneness. It can thus be simply understood as the dimensionless but creative and governing origin of all knowledge. Hence we intend to treat Ω as a mathematical topology. Ω denotes the completeness of divine knowledge and thus the stock of the divine law in the Qur'an and is referred to as Lauh Mahfuz (Qur'an 85:21-22).

Φ denotes the ontology derived from Ω in the form of the divine law (Sunnat Allah). Φ is thus the knowledge domain of the revealed Qur'an as manifested in the order of the world-systems. It is observed and explained by the completeness and absoluteness of Ω.

F denotes the spontaneous and pervasive unveiling of divine oneness in the cosmic scale through the divine law.

Φ* denotes the further ontological comprehension of the divine law in Φ as a behavioral dynamics realized through the Sunnah (guidance) of the Prophet Muhammad. This medium of presenting the divine law in living experience is denoted by the mapping f*.

{θ} denotes a sequence of knowledge-flows derived from the epistemology of unity by the exercise of Shura (Islamic participatory consultation as a field of studying unifying relations, Qur'an (Chapter 42) discourse at the level of deriving the Usul of Shari'ah (foundation of Shari'ah, the Islamic Law) as the core of the divine law.

The medium of the Shura discourse is denoted by the symbol, fl, in respect to stage 1 of the Shuratic Process. The Shura is understood in the light of the Qur'an (Chapter 42, verses 38, 49-53) to encompass all relational orders with which the human mind grapples for understanding reality.

Necessary Condition

Since Ω is absolute and complete, therefore it commands both knowledge-flows, {θ}, and falsehood, {θ'} (Qur'an, 7:14-15). But also since {θ} and {θ'} are distinctly opposite, therefore their nullity, say φ, also belongs to Ω. Thus Ω

bestows exact meanings to truth as knowledge-flows, $\{\theta\}$ and falsehood, $\{\theta'\}$. These two realities are distinctly unified within themselves by their specified characteristics and methodologies as endowed by Ω. The characteristics of $\{\theta\}$ are relationally and causally unified by virtue of complementarities and richness of diversity within a relational world-system. $\{\theta'\}$ is unified within itself by the opposite characteristics, namely, methodological individualism, independence and competition (Qur'an, 102:1-2).

From the distinct and opposite characteristics of $\{\theta\}$ and $\{\theta'\}$ emanate world-systems $\{X(\theta)\}$ and $\{X(\theta')\}$, respectively. These are characterized by their opposite precepts, complementarities and rich diversity for $\{X(\theta)\}$ against methodological individualism, independence and competition for $\{X'(\theta')\}$. This differentiation is pervasive in reality as indicated by the projection over space and time in the systems implied by the chain relation (9.1).

The principle of pervasive complementarities across rich diversity represented by $\{\theta\}$ is thus opposite to the central postulate of competition and scarcity in the domain of $\{\theta', X'(\theta')\}$. The latter is central to the postulate of marginal substitution.

Likewise, the evaluating criterion functions of the two opposing systems are contrary to each other. In the Islamic system the evaluation of unity of knowledge is done by the wellbeing function, $W(\theta, X(\theta))$. In the mainstream economic system the criterion function is given by utility function and its prototype, the welfare function.

Sufficient Condition

For every elementary form of $\{\theta, X(\theta)\}$ there are relational complementarities across diversity of these tuples. Attained levels of complementarities are evaluated by Shuratic discourses in reference to the wellbeing function. In these plethora of systemic relations combined by unity of knowledge the existence of any state of methodological individualism, independence and competition will lead to separable relations eventually. That state will bifurcate the system. Hence complementarities are the essence of the system of unity of knowledge as opposed to rationalistic episteme underlying relationally competing systems governed by marginal substitution. Since the Tawhidi worldview conveys the absolute and perfect oneness of the Divine Law in systems, the Principle of Complementarities across Diversity implies the episteme of $[\{\theta\} \in \Omega]$. Its opposite is the episteme of economic rationality and marginal substitution that reflects $\{\theta'\} \in \Omega$.

In the end we note that an ethico-economic general equilibrium system in the light of endogenous ethics means the relational order of systems of complementarities across diversity. Such systems and the process underlying them are referred to in the Qur'an (36:36) as 'pairing' of the universe of Ayath-Allah (the Signs of Allah). In the opposite world-system of $\{\theta', X'(\theta')\}$, pervasive complementarities and diversity are impossible according to the above NASC. Consequently, an ethico-economic general equilibrium system does not have an episteme premised on mainstream socio-scientific theory and conceptions.

II

The Ethico-Economic General Equilibrium System of Money, Finance and Real Economy Interrelations with Islamic insurance

1. Invoking Attention to the Endogenous Relationship Between Money and the Real Economy by Reference to the Fundamental Qur'anic Episteme

With the conclusion of Section I, the expression (9.1) becomes the simplest form of the analytical basis for describing the ethico-economic general equilibrium system. In this chain we now explain the following symbols:

$$[\Omega \rightarrow_F \{\Phi\} \rightarrow_{f^*} \{\Phi^*\}] \tag{9.2}$$

denotes the fundamental episteme as the Qur'anic and Sunnah invocation to establish the meaning and delineation of the Islamic ethico-economic paradigm. That is, we derive the meaning of pervasive complementarities across diversity by invoking the Qur'anic precepts of the 'paired' universe (Qur'an, 51:49) and the Qur'anic balanced and creatively dynamic worldview of unity reflected as Ayaths (Signs of Allah) in everything (41:53). The Sunnah is invoked along with the Qur'an as the exegetic basis of the Qur'an. Indeed the Qur'an declares that the Prophet Muhammad (SWAS) explained (Ahadith) nothing but the Qur'an (Qur'an, 53:3).

The conception of a pervasively relational worldview of complementarities is obtained from the above episteme by reference simply to the Qur'anic exegesis. Thus the precept of the Qur'anic 'paired' universe is not equivalent to the theory of pairs given by Paul Dirac. Neither is it equivalent to the limited complementarities of neoclassical economic theory as explained by the Slutsky equation (Henderson & Quandt, 1971). In either of these cases the power of complementary relations is bounded by the optimal resource space and relative

prices that cannot yield to endogenous effect of knowledge evolution. Even when knowledge is induced in competing variables, they are dichotomized between these variables as trade-off.

In respect to money, finance and the real economy, the fundamental episteme given by (9.2) suggests reference to the use of money for spending in the good things of life without a discounted valuation over time. This is the exegesis of the verses of Sura Kahf (18:19), whereby, money as coins and spending in the good things of life are linked together without a money a concept of the time-value of money. This is a primal rule, Ahkam, obtained by reference to the fundamental episteme (9.2) rather than to such rationalist ideas as defining money by means of the Quantity Theory of Money or by the transaction demand for money (Metwally, undated), without first explaining the endogenous relationship between money and the social economy. Money in the latter case is a primordial artifact given in the Qur'an and explained by the importance placed on it by the Prophet's saying (Ahadith). Bilal the beloved companion of the Prophet once brought some superior dates to the Prophet. When the Prophet asked as to how Bilal had acquired the dates, Bilal said that he had some inferior dates, which he exchanged in amount of two units to one unit of the superior dates. The Prophet said such an exchange of dates was Riba and forbade its practice. The Prophet said that Bilal should have sold the inferior dates and used the proceeds to buy amounts of the superior dates in value equivalence (Ismail, 1989, p. 374).

Finally, the discourse mechanism is to be invoked to study the Qur'anic Ahkam supported by the Sunnah relating to the function of money and the real economy via spending in the good things of life. This {Φ*} is not a rational invocation. Hence the Sharees, that is discourse agents of the Shura in the study of the endogenous money-real economy relationship, must continue on to derive the worldly rules of economics and finance from the fundamental precepts of the Qur'an and the Sunnah, not from the episteme of economic rationality.

The conclusion is that money and real economy linkage as derived from the fundamental episteme given by expression (9.2) is that they follow the Qur'anic principle of pairs or complementarities that form causal interrelationships between the two. In the most general case the conclusion points to the fact that scientific rules are to be derived by primal reference to the Qur'an (Ω) and the Sunnah $\{\Phi\}$, followed by their use in the Shuratic discourse mechanism $\{\Phi^*\}$. Such an Islamic implication establishes the undeterred primacy of the fundamental episteme over rationalism, as derived by the functional mappings shown in expression (9.2). This implication alerts us from the very inception on the money-real economy relations, that money as perceived in the existing banking system cannot be transformed into endogenous money without substantively understanding such the endogenous money-finance-real economy interrelationship and bringing about substantive institutional change to realize this.

2. Constructing the Endogenous Relationship Between Money and the Real Economy by Reference to the Qur'anic Ahkam

From the implication of the fundamental episteme on the need to study the nature of interrelationship between money and real economy with respect to spending in the good things of life as ordained by the Shari'ah ($\{\Phi^*\}$), the knowledge-flows ($\{\theta\}$) now become the Shuratic discourse-related simulation parameter of learning and applying the details to the money-real economy relationship.

We say, as the Ummah, the conscious world-nation of Islam, rises to such a complementary monetary and real economy challenge from the corruption of the modern monetary and economic system, it will have to move progressively by learning on the systemic unity of knowledge. How is this learning process described? A certain sequence of the θ-values is assigned to an agreed upon level of consensus attained on how to link money and real economy by their

endogenous causal feedback interrelationship. For every such progressive limiting θ-value there is a particular realization of the money-real economy interrelationship (- here denotes money and real economy linkage).

We now write the portion of expression (9.1) as follows in order to incorporate the details of the money-real economy causal interrelationship:

$$\{\theta\} \rightarrow_{\bar{z}} \{X(\{\theta\})\} \rightarrow_{\bar{z}} \text{New } \{\theta\}, \text{New}\{X(\{\theta\})\} \text{ etc.} \qquad (9.3)$$

An initial level Shura discourse in the Ummah, say taken up between the Islamic Development Bank, Islamic Banks, National Development Banks, Enterprises and Islamic scholars, targets an Ummah transformation by means of establishing a private sector asset-backed money, such as the Islamic Gold Dinar (Billington, 2002) and thereby establishing complementary relationship between trade and enterprise development. The on-going Shura assigns an ordinal measure of say 1 to the initial experience of the attained linkage.

We now have the interacting variables and relations,

$$\theta=1 \rightarrow_{\bar{z}} X(\theta=1)=\{X_1(\theta=1), X_2(\theta=1), X_3(\{\theta=1\}), X_4(\theta=1), X_5(\theta=1), X_6(\theta=1)\} \quad (9.4)$$

where, $X_1(\theta=1)$ denotes the quantity of money. $X_2(\theta=1)$ denotes spending in the goods things of life conformable to the stage of the endogenous interrelationships pertaining to $\theta=1$. $X_3(\theta=1)$ denotes the attained level of trade flow realized by the given stage of the complementary relationship between $X_1(\theta=1)$ and $X_2(\theta=1)$ for $\theta=1$. $X_4(\theta=1)$ denotes the enterprise growth related with the interrelationships between the other variables. $X_5(\theta=1)$ denotes the financial instruments, such as Mudarabah, Musharakah, Foreign Trade Financing, Forward pricing of contracts (Bay Muajjal) etc. that facilitate the interrelationships between all the variables.

$X_6(\theta = 1)$ denotes the pooled risk capital and its diversification by the medium of the Islamic insurance, Takaful.

Because of complementarities between the variables and re-origination of the θ-values through the recursive Shuratic Processes we obtain the following complementary relations in money, finance and the real economy linkages through the route of spending and the impact of policy and institutional variables and financial instruments.

$$X_1(\theta=1)=f_1(X_2(\theta=1),X_3(\theta=1),X_4(\theta=1),X_5(\theta=1),X_6(\theta=1)) \qquad (9.5)$$

$$X_2(\theta=1)=f_2(X_1(\theta=1),X_3(\theta=1),X_4(\theta=1),X_5(\theta=1),X_6(\theta=1)) \qquad (9.6)$$

$$X_3(\theta=1)=f_3(X_1(\theta=1),X_2(\theta=1),X_4(\theta=1),X_5(\theta=1),X_6(\theta=1)) \qquad (9.7)$$

$$X_4(\theta=1)=f_4(X_1(\theta=1),X_2(\theta=1),X_3(\theta=1),X_5(\theta=1),X_6(\theta=1)) \qquad (9.8)$$

$$X_5(\theta=1)=f_5(X_1(\theta=1),X_2(\theta=1),X_3(\theta=1),X_4(\theta=1),X_6(\theta=1)) \qquad (9.9)$$

$$X_6(\theta=1)=f_6(X_1(\theta=1),X_2(\theta=1),X_3(\theta=1),X_4(\theta=1),X_5(\theta=1)) \qquad (9.10)$$

$$\downarrow$$

$$W(\theta=1) = W(X_1(\theta=1),X_2(\theta=1),X_3(\theta=1),X_4(\theta=1),X_5(\theta=1),X_6(\theta=1)) \qquad (9.11)$$

$$\downarrow$$

$$\theta_. = f_7(\theta_., W(\theta_.)) \qquad (9.12)$$

Initially, $\theta_. = 1$

The above equations can be specified according to the meanings underlying them.

Equation (9.5) means that a quantity of money is generated by the Central Bank through the financial intermediaries (Islamic banks) in response to the level of spending, which is further categorized by trade and domestic spending,

particularly in the Ummah. The growth of enterprises also needs investment spending. Resource mobilization in real economic activities is realized through Islamic financial instruments. The Islamic insurance diversifies risk and guides enterprises in areas of product diversification.

Equation (9.6) is explained by making spending to relate to the quantity of money, trade, growth of enterprises, risk diversification and product diversification by the Islamic insurance using Islamic financial instruments.

Equations (9.7) – (9.10) are similarly interrelated. But of special importance is noted on equation (9.10). In this, the risk/product diversification function of Islamic insurance (Takaful) is related with the volume of monetary flows through financial resource mobilization and spending activities in the good things of life. The more effective is the risk and product diversification the greater is the resource mobilization with the support of the Islamic financial instruments.

It is important also to note how the financial instruments in terms of the volumes of financing flowing through them, can be related to the other variables. The higher is the risk and product diversification the greater is the participatory capacity of the Islamic economy. Thereby, the greater is the flow of resources through such instruments and their linkages with the spending, money and trade variables.

Finally, the remaining portion of expression (9.3) showing the evolutionary nature of the Shuratic Processes causes new rounds of θ-values to be assigned. This is indicated by θ_+ based on previous θ-values and the prevailing values of the socio-economic and policy variables as functions of the newly discoursed θ-value. This assumes an ordinal value for θ_+. The recursive relations proceed on as sequences of the limiting θ-values evolve by every new round of the Shuratic Process.

Note that in complex forms of interaction leading to assignments of θ-values the multiple θ-values are converted into their limiting forms over giving ranges of interaction leading to Shuratic consensus and then followed by creative evolution. These three features, namely of interaction leading to integration followed by creative evolution (IIE) in continuous cycles of knowledge formation is the permanent feature of the Tawhidi methodology when applied to diverse systemic interrelationships.

Specification of the Complementary Relations in the Circular Causation Between Variables

The pervasive complementarities across diversity with knowledge-centered evolution implied by the system of recursive relations given by equations (9.5)-(9.10) are fed into a social wellbeing function given by expression (9.11). The social wellbeing criterion evaluates the degree to which unity of knowledge has been gained at a particular stage of the sequences of Shuratic Processes. Consequently, the entire objective criterion of the money-real economy interrelationships with the support of Islamic insurances of Takaful taking care of risk and product diversifications is given by the system (13)-(15).

In this system of relations we have specified each of the equations in the product form with knowledge-induced fields of elasticity coefficients and the knowledge-induced variables. Briefly, the model specification is written as,

$$\text{Simulate } \{\theta\} \ W(\theta) = W(\theta, \mathbf{X}(\theta)) = \Pi_{x=1}{}^{6} X_x(\theta)^{b_x(\theta)} \qquad (9.13)$$

$$\text{Subject to, } Y_i(\theta) = \Pi_j X_j(\theta)^{q_j(\theta)} \qquad (9.14)$$

$$\theta_{.} = f_7(\theta_{.}, W(\theta_{.})) \qquad (9.15)$$

$$i = 1,2,\dots,6; \ j = 1,2,\dots,6; \ \text{with } i \neq j; \ \theta_{.} = 1$$

$b_x(\theta)$ are the wellbeing elasticity coefficients of $X_x(\theta)$; $a_j(\theta)$ are Y_j elasticity coefficients of $X_j(\theta)$ variable for given θ-values.

A note needs to be made regarding the continuous interrelationship between θ-values and the $X(\theta)$-variables. This can be done by assigning $W(\theta)$ values for θ-values in the range, $0 < \theta < 10$ (say). Equation (9.15) can then be estimated by non-linear regression method to attain a standard result to generate recursive θ-values in the range, $0 < \theta < 10$ (say). But in spite of the regression estimation the θ-values must be initially generated within Shuratic Processes institutionally and in cognizance of the ethico-economic market realities.

The system of equations (9.13)-(9.15) is non-linear in the elasticity coefficients. These coefficients being functions of the perturbation θ-variables that form random fields by their own stochastic values (Vanmarcke, 1988).

The Special Role of the Islamic insurance of Takaful in Risk and Product Diversifications for Financial Resource Mobilization

The knowledge-induced elasticity coefficients associated with the variable $X_6(\theta)$ of the system of equations (9.13)-(9.15) must be examined for the impact that the Islamic insurance of Takaful and Islamic reinsurance of Re-Takaful as non-bank financing institutions play in respect to facilitating the money-finance-real economy linkage. $X_6(\theta)$ is interpreted as risk diversification compounded by product diversification. This joint indicator of risk and product diversification, ρ, is defined as

$$\rho = \text{Var}[(K.Q)/N]/[Q/N] = \text{Var}(K.Q)/N^2/Q/N = \text{Var}(K.Q)/N.Q \qquad (9.16)$$

where K denotes capital outlay as spending to produce a unit of output, Q. Thus, K.Q denotes total risk capital in Takaful. With N denoting the number of participants, [K.Q/N] denotes per capita risk exposure.

In expression (9.16) N.Q is total diversified output occurring as a result of increased participation in risk and cost sharing. Now $X_6(\theta)$ becomes more effective. That is effective risk and product diversifications are taking place. $X_6(\theta)$ is conveying its positive effect to resource mobilization.

We then obtain the following effects of effective risk and product diversification on money-finance-real economy linkages and the resulting total wellbeing.

$$b_6(\theta)=d\log W(\theta)/d\log X_6(\theta) =$$

percentage change in $W(\theta)$/percentage change in $X_6(\theta)$ (9.17)

$$a_i(\theta)=d\log X_i(\theta)/d\log X_6(\theta) =$$

percentage change in $X_i(\theta)$/percentage change in $X_6(\theta)$ (9.18)

$$a_6(\theta)=d\log X_6(\theta)/d\log X_i(\theta) =$$

percentage change in $X_6(\theta)$/percentage change in $X_i(\theta)$ (9.19)

$$i = 1,2,...5.$$

Between the expressions (9.16)-(9.19) we obtain,

$a_i(\theta) > 0$, with $da_i(\theta)/d\theta > 0$. These mean that effective risk diversification is expected to positively affect all the defined resource-mobilizing variables in the

system (9.5)-(9.12). Besides, enhancing θ-values with the evolution of Shuratic Processes will further strengthen the positive values of $a_i(\theta)$, $i = 1,2,...,5$.

The same effect is noted in expression (9.18) due to the negative value of percentage change in $X_6(\theta)$ with increasing risk and product diversification as θ increases over the Shuratic Processes. This conveys the consequential enhancing effect of compounded diversifications on percentage change in $X_i(\theta)$. Consequently, risk and product diversifications are necessary conditions for effective resource mobilization through the money, finance and real economy linkage. The policy variables and financing instruments are likewise activated in realizing the positive relationships between risk and product diversification and resource mobilization. The function of θ in the evolutionary Shuratic Processes is essential in realizing such enhancing effects.

$a_6(\theta)$ shows reverse causality from $\{X_i(\theta)\}$ to $X_6(\theta)$. That is, as resource mobilization increases with the enhancing interrelationship between money, finance and the real economy more ventures arise and participation increases. Consequently, NQ increases and compounded risk and product diversification denoted by $X_6(\theta)$ increases. Again all these effects result from Shuratic Processes. Therefore, $a_6(\theta) > 0$ and $da_6(\theta)/d\theta > 0$.

$b_6(\theta) > 0$ and $db_6(\theta)/d\theta > 0$, for reasons that the total circular causal effects between $\{X_i(\theta)\}$ and $X_6(\theta)$ variables as explained above generate enhancing complementarities between them as θ-values increase over progressive Shuratic Processes.

$W(\theta, X_i(\theta))$ is meant to evaluate the degree of complementarities so attained. Besides, we can write,

percentage change in $W(\theta)$/percentage change in $X_6(\theta)$

$$= (X_6(\theta)/W(\theta)) \cdot [dW(\theta)/d\theta]/dX_6(\theta)/d\theta > 0. \qquad (9.20)$$

Expression (9.20) is realizes as θ-values evolve over Shuratic Processes and enhance the circular causation between risk and product diversifications and resource mobilization in the money, finance and real economy linkages.

Finally, in this section we note the following result:

$$d\rho/d\theta = -(1/N) \cdot [Var(K.Q)/N.Q^2] \cdot dQ/d\theta - (1/Q) \cdot [Var(K.Q)/N^2.Q] \cdot dN/d\theta$$
$$= -d(Q+N)/d\theta < 0 \qquad (9.21)$$

since, $dVar(K.Q)/d\theta = 2.E(K.Q - E(K.Q)) = 0$. E denotes statistical expectation.

Expression (9.21) is independent of the size of $K.Q$ and conveys the joint effect of Q and N on the effectiveness of risk and product diversification with changes in θ-values. The negative value of $d\rho/d\theta$, that is effective risk and product diversification, depends on the progress of risk sharing among participants and joint productions as complementary conditions attained by θ-flows as the Shuratic Processes proceed on.

III

So far the circular causation relations between the complementary variables established the general ethico-economic equilibrium system, in which the endogenous effect of unity of knowledge was essential. We now bring out the interaction between the state and policy variables in the ethico-economic general equilibrium system combining money, finance, real economy and the non-bank financing institution of Takaful. Certain points regarding the interaction between

money, finance, real economy with the catalytic effect of Islamic insurance, Takaful, need to be explained first.

In order to avoid interest-based insurance financing and premium accumulation Takaful is required to function on a number of conditions. These are namely the spreading of the risk both over number of participants and joint production possibilities. We called this joint condition as risk and product diversification. Takaful's pool of fund must therefore revolve around resource mobilization instruments, such as the primary instruments of Mudarabah, Musharakah, foreign trade financing, Murabaha (cost-plus pricing) and Bay Muajjal (deferred pricing by contract). Secondary financing instruments of a mix of short, medium and long-term financial instruments, such as unit trust and joint ventures revolving around the primary ones, must also be tried out. Takaful's capital accumulation is thus based on returns generated from such resource mobilization directions using the capitalization of premiums from the insured.

Takaful must select its portfolio of investments carefully according to the nature of insurance claims between the short and long term. Generally, life insurance as group life held by Takaful would be a long-term claim but supported by a short-term contingency fund generated by the premium accumulation. Such a combination of long-term fund with short-term contingency can be served by a term insurance (Choudhury & Rahman, 1983). The claim on the life-contingency fund should be restricted to the principal and the accumulated dividends of the insured as shareholders in the portfolio less a fair profit-share to the Takaful. The claims of profit-shares can be computed in the following way.

Term insurance is particularly recommended for Takaful, because in its pay-as-you-go scheme within a short period of a year the risk diversification would remain effective. Also the short-term investments would remain less risky.

Such an investment would utilize Murabaha, Bay Muajjal and Foreign Trade Financing operations.

Mutual insurance has two kinds of risks. They are those that occur fairly regularly year-by-year and those that occur irregularly over a period of years. In the Islamic case of risk diversification Takaful as mutual insurance would not cover contingencies such as inflation hedging and automatic stabilization of economic downturns that are fairly uncertain and remote in time. Consequently, for the pay-as-you-go scheme with one-year renewable term insurance and diversified risk exposure, the reserves of such insurance portfolio would also remain small but the level of liquidity must remain high to cover the cost of term insurances and re-insurances.

$K_{st}.Q_{st}$ = total pool of Takaful fund as the risk exposure in a specific portfolio s, say group life insurance within term insurance, net of claims, at time t.

Accumulated premiums, $P_t^s = P_0^s.(1+r_s)^t$, where r_s is the average annual rate of return over time t on an estimated fixed premium of P_0^s in the portfolio s. P_t^s gives the total of principal and premium capitalization at the time of claim in the portfolio s. This is a simple version of a more elaborate forward compounding of premiums with variable premiums according to the choice of the insured to hold and change the face value and share risk proportionately with the Takaful.

$$K_{st}.Q_{st} = \Sigma_t[P_0^s.(1+r_s)^t - C_s(N,t)] + R(r,N,t) \qquad (9.22)$$

$C_s(N,t)$ denotes claims from s-portfolio based on the number of insured, N, at time t. $R_s(r,N,t)$ is the reserve requirement of the s-portfolio Takaful fund.

At the time of making out a contract on Takaful policy the premium rate, P_t^s, is determined on the basis of the going level of claims, the returns in the s-

portfolio and the face value of the policy. Thus the expected profit-share for the insured on the basis of the going composition of the s-portfolio is given by $\Sigma_t[P_0^s.(1+r_s)^t/K_{st}.Q_{st} = p_{st}$ According to this ratio the profits of the s-portfolio are shared between the insured (p_{st}) and Takaful ($1- p_{st}$)

In the case of renewable term insurance dividends would be paid out annually. Since the Takaful pool of contingency fund with low risk and claims on the basis of the pay-as-you-go scheme is made up mainly of accumulated net premiums, therefore, Takaful's policyholders are shareholders. There is no special need for large stockholders.

The above observations on reserves and premiums would not change in the case of re-Takaful (reinsurance) of large risk exposure funds, as in the case of industrial and mercantile insurance, farm insurance and workmen compensation fund. In such cases, the liquidity due to accumulated premiums of the participating businesses and agencies would also be large. Consequently, upon retaining the features of the term insurance for Takaful the volume of $R(r,N,t)$ need not be large. In all cases therefore, $R(r,N,t)$ appears as an exigency fund in case of shortfalls on premium accumulation, as can be the case of an aging population that weighs heavy on claims. Thanks to the demographic structure of the Islamic society an aging population has never existed.

When the Takaful pool of funds is augmented by Zakat (the Qur'anic mandatory wealth tax on the well-to-do) payments for the needy, a social security component comes to exist within Takaful and Re-Takaful. Yet the term insurance feature of Takaful would not change. This is because Zakat must be spent fully within a fiscal year. Capital accumulation of Zakat beyond a year is not tenable under accepted rules of the Shari'ah. The Zakat fund generated by $K_{st}.Q_{st}$ equals $0.025.K_{st}.Q_{st}$. The net Takaful Fund after Zakat equals $0.075.K_{st}.Q_{st}$. Each of the

components of the Takaful Fund is subject to Zakat payment. Yet the profit-sharing p_s-ratio does not change.

With the inclusion of the Zakat feature of Takaful combined with its sustained efficiency by keeping the profit-sharing intact in spite of Zakat, the Takaful has been transformed into a social institution besides being a privately serving one. Takaful's term insurance structure of mutual funds with effective risk and product diversification makes it a provider of low premium coverage on a pay-as-you-go basis. Thus Takaful makes itself available for the microenterprises in nation building. When these features are combined with the Shari'ah consciousness of Takaful, the regime of development that characterizes life-fulfilling sustainability becomes the natural consequence of Takaful's interactive, integrative and evolutionary relationship with all other sectors. This feature was pointed out in the circular causation system of interrelations (9.5)-(9.12). It is equivalently shown by the system (9.13)-(9.15).

Takaful and Money, Finance and Real Economy Dynamics

Like Takaful as a non-banking institution, Islamic banks too in a truly money-real economy linkage need not hold reserves. In the best case of such a 100 per cent reserve requirement monetary system the Central Bank holds the 100 per cent of the reserves. The reserves are the supplied as quantity of money to the commercial banks upon demand to mobilize as financial resources into productive Shari'ah possibilities in the real economy.

There is now a close characteristic similarity between the Islamic bank in 100 per cent reserve requirement monetary system and the Takaful. Both maintain zero to very low reserves. Since we have argued that the Takaful is a Islamic insurance that mobilizes the financial resources of an Islamic bank into the real economy according to the Shari'ah directions and financial instruments, therefore

its reserve requirement would necessarily have to be low. Contrary to this, the Islamic bank will not be able to mobilize its resources fully into the real economy using the Shari'ah financing instruments. Consequently, Riba would never be eradicated or even lowered in the Islamic economy. No Islamic and Ummatic transformation would be attained by the role of interaction between the Islamic bank and Takaful. The epistemology of unity of knowledge that guides all the conceptions and actions in the Islamic transformation process would be thwarted. Unfortunately to date such an endogenous relationship between money and the real economy, as it was formalized in the system of equations (9.5)-(9.12) and equivalently (9.13)-(9.15), has remained an impediment for Islamic banks globally.

Besides the relationship between the reserves and the unique function of both Islamic banks and Takaful to mobilize financial resources into the real economy in the presence of effective risk and product diversification, there are other non-financial performance measures that Takaful must attain. We briefly mention a few here.

1. Sustainability within the Takaful organization and across community and the nation through effective interaction with Islamic banks

2. Human resource development for understanding the functional interrelation between money, finance and real economy through Takaful

3. Trust and efficiency of Takaful in relation to its clientele and socially

4. Sound institutional governance within Takaful

Configuring the Takaful-Islamic Bank Relations in 100 Per cent Reserve Requirement Monetary System
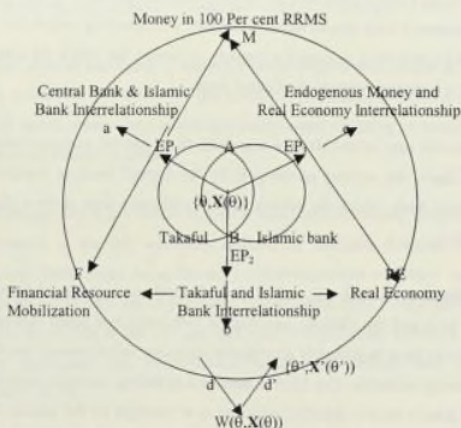
Figure 9.1: Ethico-Economic General Equilibrium Takaful-Economy Interaction in 100 Per cent Reserve Requirement Monetary System

In Figure 9.1, the intersection region between Islamic bank and Takaful is the starting point of the ethico-economic process that commences with the determination of $\{\theta, X(\theta)\}$. These variables have been defined earlier with respect to the system (9.5)-(9.12) and equivalently for (9.13)-(9.15). The arrows spanning outwards indicate the enlarging effect of the Shuratic Process with the region AB widening and carrying along three institution-market interactive and integrative ethical policy, program and organizational variables, EP_1, EP_2, EP_3.

EP_1 denotes the relationship between Central Bank and financial institutions, i.e. Islamic bank as an example, in the 100 per cent reserve

requirement monetary system. In other words, the institutional arrangement then is to have the Central Bank hold all the reserve of depositors in the Islamic banks. The commercial bank simply matches clientele with spending outlets and thereby asks the Central Bank to supply a quantity of money, for which the commercial bank pays a service charge to the Central Bank.

In the case of the 100 per cent Gold Dinar backed currency held by the Central Bank, the minting of the gold by the Central Bank is charged to the commercial bank, which the Islamic bank would raise from service charges to clientele.

Besides this, the risk and product diversification is shared between the Islamic bank and the clientele according to their respective profit-sharing ratios. The Central Bank is primarily an overseer monetary and economic development and planning authority. The Islamic bank is a spending clearance house for the Central Bank's reserve liquidity, which is now managed by the Islamic bank on behalf of the clientele. In this venture the commercial bank can assume either proportionate risk with other co-operating agents or full risk by lending the total amount. In the latter case, the sharing ratios are determined by adding to the loaned venture capital the imputed production factor costs by the clientele.

EP_1 also includes the financial instruments, such as the principal ones, Mudarabah. Musharakah, Foreign Trade, Murabaha, Bay Muajjal and secondary financing instruments revolving around the principal ones.

Above all these, EP_1 also includes the organization of the Shuratic Process between the Central Bank, the Islamic bank and the clientele.

EP_2 denotes the use of the same kinds of financing instruments and ways of realizing risk and product diversification in order to mobilize financial

resources from the Islamic banks through non-bank financing institutions, an example of which is the Takaful. Above all these, the organization of the Shuratic Process involving Islamic bank, Takaful and clientele is foremost in EP_2.

EP_3 denotes activating of market friendly policies and programs, such as dynamic preference formation in the clientele for attaining regimes of life-sustaining goods, rather than wants and conspicuous spending in consumption, production and allocation menus.

Through EP_3 it is possible to give a valuation to monetary flows in terms of the returns in the real economy realized by effective financial resource mobilization. Such returns being functions of real exchanges are simply net profit rates. The net profit rates can be expressed as a weighted sum of the profit-sharing rates. This shows that in the 100 per cent reserve requirement monetary system monetary aggregates are micro-monies specific to markets and clientele (Choudhury, 2003).

The further spanning arrows 'abc' denote the evolution of the circular causation of the $\{\theta, \mathbf{X}(\theta)\}$ variables in the system (9.5)-(9.12) and equivalently in (9.13)-(9.15). At the end of every such circular causation there is a post-evaluation of the choices and consequences of $\{\theta, \mathbf{X}(\theta)\}$ variables in the simulated system. The post-evaluation is done by the $W(\theta, \mathbf{X}(\theta))$ function in any given phase of the complete circular causation, that is a Shuratic Process. The circular causation arising from such post-evaluation and its continuity is shown by the arrows dd'.

The double-directional arrows along the sides of the MFRE-triangle imply the endogenous nature of the IIE process of circular causation between M, F and MRE.

IV

Conclusion

The policy perspectives relating to the study done in this chapter revolve around
the central theme of 100 per cent reserve requirement monetary system. Around
this the special relationship between money, finance and the real economy is
established. Money becomes endogenously determined by exchange transactions
in the real economy according to Shari'ah, which stands for development regimes
of life-fulfilling goods and services. This kind of money is asset-backed by means
of real economic transactions.

Islamic banks can realize their high potential for growth, wellbeing and
Ummatic transformation in the presence of the 100 per cent reserve requirement
monetary system. This is the unique way for phasing out interest rates and to
bring about effective resource mobilization into the real economy.

Takaful as a Islamic insurance thus links up cogently with the Islamic
banks as the medium of resource mobilization while activating the Islamic
financing instruments and realizing risk and product diversification.

This chapter recommends that,

(1) the Islamic Development Bank along with the financial and economic
    planning departments of its membership and importantly including
    Islamic banks and Takaful business are to join folds to chart out a
    conversion of the monetary system into a 100 per cent reserve
    requirement monetary system. This would be the Islamic challenge to the
    new financial and economic architecture being sought today by the IMF

(2) Islamic banks and Takaful businesses need to interact to determine ways of accelerating resource mobilization into the real economy in the face of risk and production diversification.

(3) In all of the above undertaking the Shuratic Process need to be implemented to chart and monitor the momentum of institution-market interactive change across the Ummah. The embedding of the monetary transformation into 100 per cent reserve requirement monetary system in the framework of the Shuratic Process as explained in this chapter and elsewhere, must be the continuous Ijtihad of the new millennium (Choudhury et al, 2003).

(4) Human resource development needs to be enhanced in the area of understanding and implementing the Shuratic Process at all levels. Along the theme of this chapter such HRD needs to be enhanced interactively between IRTI, the Islamic banks and Takaful businesses.

(5) An effective data bank, richer than the one presently maintained by Statistical, Economic and Social Research and Training Center for Islamic Countries, needs to be developed for simulating large systems of circular causation equations pertaining to the kind of simulation problem introduced in this chapter and to carry it beyond.

CHAPTER 10

CONCLUDING DIRECTIONS:
MONETARY INTEGRATION BY THE GOLD STANDARD

To begin the chapter the key terms of the title need to be explained. What is the idea of linkage between money and real economy, which stands for the term harmonization? What is and how can a universal standard be established to explain the money that is causally linked with such a harmonization idea?

Objective

The argument of this chapter is that the presence of unstable economic relationships befogs the problem of discerning the endogenous function between money and economic activity. The presence of interest-bearing forces and their effects in the financial and real goods economy cause this instability. The result is a fundamental disequilibrium in the money and economic sectors. The adverse implication of the fundamental disequilibrium is seriously social in nature. The study of the interrelationships between money, economic activities and social issues governed by an epistemological rule that organizes the money-economy interrelationship as a circular causation in social and economic functions is the conceptual objective of this chapter.

The questions raised are the following: Can the existing banking and financial worlds and the currency of the new quantity theory take care of this fundamental equilibrium? We examine this question from the viewpoint of a claimed stability of the money-economy social interrelationships with the gold standard given a 100 per cent reserve requirement monetary system. All of these relations function according to the premise of a relational epistemology (Thayer-Bacon, 2003) that enables stable money-economy-society circular causation interrelationships to prevail.

Background and Review of the Monetary Arguments

Money by nature is a standard of valuation of goods and services in exchange. The quantity theory of money raises the question as to which is the primal direction of the causality. That is whether the quantity of money determines the price level or is vice-versa. This question is problematic in the quantity theory as pointed out by Professor David Laidler (1989). The problematic nature of this question raises the underlying causality problem whether money is an original artifact or whether it is simply a contravention that measures value only after prices, and thereby, exchange transactions have been established in the market venue? The gurus of monetary theory have examined this question of the exchange relationship in terms of money.

Classical Quantity Theory to Marx and Keynes

To summarize the trends in the various texture of the monetary debate from the classical economic thought to Keynes and beyond (Foley, 1989), we note that the wedge in such thinking revolves around the function, social and thereby general economic equilibrium and the currency numeraire that would establish a stable relationship between such social function of money in concert with an equally stable functioning of the goods/services market. The equation of exchange means exactly this money-real economy equilibrium. Yet this is with a substantial difference when we note what drives the relationship (Yeager, 1989). The classical economists and social philosophers thought of the equation of exchange to be driven not by the rate of interest but by the profit rate and hence profit motive in the economy. Thus productivity was at the root of a sustained growth, stability and matching money supply. Hume, Smith and Ricardo thought of the quantity of money as an endogenous relationship in the money-economy activity. The question was still pending for an answer, which comes first in the cyclical interrelationship between money and economy and how any primordial nature of

either money and economy is captured and explained in the equation of exchange. Marx as the other classical economists saw money to be tied to a numeraire (anchor) such as gold as commodity money, which they saw was capable of endowing the wished for general equilibrium social interrelationship between the quantity of money and the stable and growing economic activity. The emphasis was almost exclusively on the production side of the economy.

Neoclassical Version of Quantity Theory

In the neoclassical version of the quantity theory equation given by Fisher (1911) the assumption in the equation to continue to establish under the impact of flexible prices, leads to accept conditions of volatility and instability in prices. This is particularly true when the equation of exchange is applied to volatile financial and asset-valuation markets. Thereby, the velocity of the quantity theory becomes an unstable parameter of the exchange equation. Furthermore, the projection of the resulting unstable relationship between volatile prices, exchange rates and output causes an unstable general economic relationship at large. This is the meaning of fundamental disequilibrium in the money-economy relationship. Yet the Fisher version of the exchange equation continues on to imply equilibrium between the money and economic activity, but at the expense of volatility and instability in all markets.

Growing Uncertainty in the Equation of Exchange

The coming of mercantilism, global capitalism and the promissory notes financial transactions continued on the tradition of the quantity theory of money but introduced in the equation of exchange the caveat of interest-based financial papers and assets. The question of the relationship between interest rates, price level and production thus came in focus in the equation of exchange.

The result of uncertainty and instability in the quantity theory equation caused by the introduction of bonds, equity and credit markets as perfect substitutes of money was recognized in Keynes' treatment of money and more recently by Lucas (1981) and Friedman (1989). Keynes' Money Demand is a behavioral relationship reflecting the propensities that make economic agents to hold money over the long run. In the short run there is no concern over price stability as the economy expands into higher levels of productivity by the impact of money demand and supply, finally pushing the economy to its long run scarcity in factor resources of production and higher demand for output with the arrival of the full-employment level of output. In this situation of full-employment the neutrality of money in expanding real output any further causes unstable and inflationary pressures (Marquis, 1996). Furthermore, with inflationary pressure sets in the regime of higher interest rates, which in turn can move the economy into hyper-inflation or recession. Volatile business cycles caused by the fluctuations in higher rates of interest and worsening equity market bring about depressive conditions in investment. Exchange rate appreciation in the face of high interest rates and prices adversely affects exports, while it encourages portfolio as opposed to real investments. The social sector of the economy involving employment and social spending is adversely affected. The result of such uncertainty and volatility is well known in terms of the uncertain trade-offs between internal balance governed by fiscal policy and external balance governed by monetary policy (Kenan, 1985).

Rational Expectations Hypothesis

Lucas's rational expectations hypothesis (1972) is of a Keynesian category with adaptive information flow in the money and output relationship. Any stability relationship here will require primarily a stable information set. But the over all economic volatility of the Keynesian model around the long-run full-employment point of money-real output neutrality and inflationary regime restricts a sustained

production of information flow to stabilize the otherwise unstable economic relations in the Keynesian general equilibrium model. The unanticipated monetary supply causes a prolonged increase in price level as the spending plans accept the announced monetary effect on higher prices. Spending further, fuels this inflationary perception. On the other side, unanticipated money supply gives a one-time shock to inflation, which dies down once the unanticipated money supply ends. Spending preferences cannot change within the short period of the unanticipated money supply. If independence between the anticipated and unanticipated money supply shocks cannot be maintained, which is the case if the monetary policy is an active one, then predictability of information flow on money supply and its effects on prices and outputs cannot be maintained. This is a source of uncertainty and volatility to the money-economy relationship.

Milton Friedman on Money

Milton Friedman's (1989) two-sector generalization of the equation of exchange introduces financial instability in the money-economy relationship. The term dealing with securities in the equation of exchange is a sensitive function of interest rates, particularly the terms structure of interest rates. The presence of the term structure of interest rates introduces instability in the equation of exchange, for the term structure is always subject to random fluctuations despite the fact the long-term interest rate may remain stable. The uncertainty and volatility problems are further revealed in the equation of exchange by examining the demand and supply of money, both of which are influenced by the term structure of interest rates on financial securities. Consequently, the monetary equilibrium is destabilized by the interaction between such term structure of interest rates and prices levels on securities, and thereby on goods and services exchanged in the real as opposed to the financial markets. The existence of the term structure of interest rates and its compounding volatility effect on prices of goods and services

permanently causes monetary disequilibrium to appear in the more recent version of Friedman's equation of exchange.

Certain Definitions

The money and real economy linkage means sustainability of the circular causation interrelationship between money and real economy in the sense of the real economy being the domain of non-inflationary and development driven spending in market exchangeables. Such a definition comes close to Boulding's (1971) definition of the moral economy. Boulding defines the economy as that part of his three-parts total social system comprising the benevolent, the malevolent and the integrative sub-systems in which is organized through exchange and deals with exchangeables. But with the introduction of such a total social system with its particular sub-systems the nature of the exchangeable becomes a fuzzy mixture between tangibles and intangibles.

The real economy is such a total social system in which money and economy link cogently with the social question to determine the stable circular interrelationships between these. That part of the economy, belonging to the malevolent sub-system that causes market exchange in speculation, volatile and unethical activities, is discounted from the definition of the real economy. This exclusion is not by way of imposition on the market. Rather, the consequences on ethical preferences and menus of the general economic relationships (Sen, 1990) arise from the endogenous nature of the circular interrelationships among these three sectors together with the fourth most crucially governing epistemology guiding and sustaining the full circular causation interrelationships. Only by way of this sustainability consequence but not as a primordial premise of definition, is a real economy one in which real output remains stable and establishes its stable relationship with money in the equation of exchange.

The *Universal Standard* in the money-real economy social harmonizing, which is the complementary circular causation interrelationship between money, real economy, social and epistemological domains means the following two coterminous concepts in the choice of the monetary numeraire. Firstly, the most useful numeraire as a stable commodity standard for currency valuation is found to be the gold standard. Secondly, the re-establishment of the gold standard means institutional restructuring of the monetary, financial and economic systems governed by a regime of the 100 per cent reserve requirement monetary system. Yet the quantity of the gold holding to support the currency circulation in the real economy governed by the 100 per cent RRMS is minimal and of a special nature as will be explained.

The epistemological background is unity of knowledge working endogenously in the circular causation interrelationships between and within two levels of systems together forming the socio-economic general equilibrium framework. Firstly, there is the Ontological Evidential System (OES). This provides the list of socio-economic variables and their ontological functions. Secondly, there is the Institutional System (IS) comprising the Central Bank, Commercial Banks, Financial and non-Financial Intermediaries and the Ministry of Social and Economic Development Planning. The IS discourses within it in respect to the interrelationships observed or formulated for the OES. Thus the normative and positive evidences of unity of knowledge at the OES circularly recourses with the IS, while there are dynamic functions within and between these systems as there are similar circular feedbacks by discourse or interaction within the systems.

Because of the primacy of feedback premised on the axiom of unity of knowledge as the governing law of such circularly interrelating systems, three properties characterize these relations intra and inter- systems. These are firstly pervasive interaction between evidential forms, institutional decisions and

between these categories. Secondly, such extensive interactions lead into participatory consensus or equilibrium convergences at the levels of OES and IS, respectively. We refer to such interactively resulting convergences or consensus as integration.

Each sequence of interaction leading to integration ends with the evaluation of the interactive, integrative relations between and within the OES and IS. The evaluative objective function is referred to as the Social Wellbeing Function (SWF). SWF measures the degree to which unity of knowledge is attained in the interactive, integrative process as defined above. Evaluation of SWF is thereafter followed by evolution into subsequent sequences of processes of similar types. The OES-IS interrelations are thus circularly generated and perpetuated across processes through the evaluation of the SWF in the light of the epistemology of unity of knowledge.

The sequences of the interaction, integration and evolutionary processes (IIE-process) signifying the circular causation interrelationships governed by the epistemology of unity of knowledge are shown in Figure 10.1.

Figure 10.1: Circular Causation Interrelationships in IIE Processes

[Ω(Unity of Knowledge)$\rightarrow$,{θ: Set of Derived Rules}]: Epistemology; s as ontology in deriving {θ}

P

                ↓

P
R

Causation to OES = {θ,$\mathbf{X}(\theta)$}, {$\mathbf{X}(\theta)$} sets of OES evidences

O

C

                ↓

E

S

Evaluation of attained levels of unity of knowledge between IS and OES: SWF(θ,$\mathbf{X}(\theta)$)

S

1

                ↓

Evolution to similar processes   ◄────────────

                ↓

{θ_{new}, $\mathbf{X}_{new}(\theta_{new})$}: empirical type (ordinal values assigned by IS in reference to SWF-value in P1

                ↓

Continuity of similar processes by recursive and discursive IIE between IS and OES.

K N O W L E D G E   I N D U C E D   E N D O G E N O U S   P

Because {θ, θ_{new}} are generated recursively by the IIE processes according to the episteme of unity of knowledge, which alone remains exogenous in the entirely endogenous system of circular causation interrelations, therefore we refer to them as knowledge-flows derived from the epistemology of unity of knowledge.

Deriving the Money-Real Economy Social Interrelations in the OES-IS Framework

The epistemological model of Figure 10.1 is now used to formulate the money-real economy circular causation social interrelations. We depict this first in Figure 10.2.

EP

$\{\theta, \theta_{new}, X(\theta), X_{new} (\theta_{new})\}$ values recursively generated over processes

Quantity of money determined recursively by $\{\theta, \theta_{new}, X(\theta), X_{new} (\theta_{new})\}$; M-}
M

S
Social variables determined recursively By $[\{\theta, \theta_{new}, X(\theta), X_{new} (\theta_{new})\}]$-,M]

E Economic variables determined recursively By $[\{\theta, \theta_{new}, X(\theta), X_{new} (\theta_{new})\}]$-,M]

SWF$(\theta, \theta_{new}, X(\theta), X_{new} (\theta_{new})\}$, M Evaluation and Continuity of Process
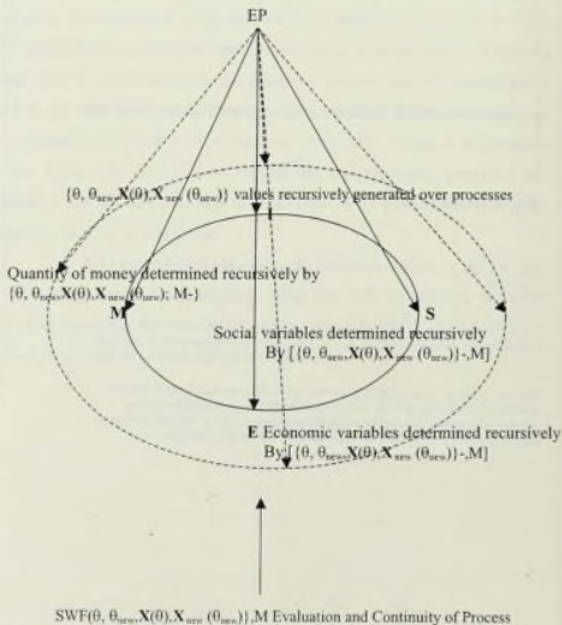
Figure 10.2: Epistemological Induction in the Money-Real Economy Social Interrelations

Explanation of Figure 10.2

EP is the epistemology of unity of knowledge at the IS level. M denotes quantity of money and is recursively determined in the sense of complementarities between $\{\theta^*, Q(\theta^*), p(\theta^*), (r(\theta^*)/i(\theta^*)), T(\theta^*), E(\theta^*), M(\theta^*)\}_t$, t denotes lagged recursion of θ^*-values and its induced variables, beginning with the first process when $t = 0$.

For simplicity we have subsumed the knowledge-flow vector in the symbol θ^*. $Q(\theta^*)$ denotes θ^*-induced output. $p(\theta^*)$ denotes θ^*-induced price level. $r(\theta^*)$ denotes θ^*-induced rate of return on equities. $i(\theta^*)$ denotes θ^*-induced reduction in interest rates. Thus $(r(\theta^*)/i(\theta^*))$ is a relative price of two mutually exclusive financial policy variables in the interest-free money-economy relationship. $T(\theta^*)$ denotes knowledge-induced total balance of payments (Current Accounts + Capital Accounts). $E(\theta^*)$ denotes employment variable as a social indicator. $M(\theta^*)$ denotes knowledge-induced quantity of money variable.

The variables shown are circularly interrelated according to the IIE framework of unity of knowledge. Therefore, the normative target is to derive and guide this system of circular causation interrelations into positive relationships between the variables while evaluating the degree to which such progressive complementarities exist in the recursively evaluated social wellbeing function,

$$SWF(\{\theta^*, Q(\theta^*), p(\theta^*), (r(\theta^*)/i(\theta^*)), T(\theta^*), E(\theta^*), M(\theta^*)\}), \qquad (10.1)$$

Consequently, in a positive direction of the money-real economy social transformation we ought to be looking for a progressively enhancing positive values of the elasticity coefficients between the variables interrelated and recursively estimated in the circular causation interrelationships.

What does this formalism mean? According to the money-real economy social interrelations as explained earlier, the quantity of money equals the spending in goods, financial assets and services determined by policy guidance and preference changes in the

light of knowledge induction. Vice-versa in the cyclical round of processes, the lagged monetary, financial, real economy and social variables determine the new matching quantity of money. The indeterminacy of the money-price-output relationship of various versions of the quantity theory is thus removed by the lagged determination of the variables in the circular causation process. Money is thus fully endogenous in terms of the other variables and the lagged ones in the IIE process.

Now since the return on money is predetermined by the return of the real economy, which is productive and social in spending according to the policy and preference choices, therefore, the accumulation of capital and the growth of the economy is determined by an inverse relationship between r and i in accordance with the degree of impact of recursive θ^*-values. Consequently, the IS and OES are now made to recursively respond to each other along the path of sustainability of the following expected relationship of normatively guided direction of money-real economy social transformation.

$\theta^*\uparrow \rightarrow \{p(\theta^*).Q(\theta^*)=\text{spending}\}\uparrow \rightarrow r(\theta^*)\uparrow \rightarrow i(\theta^*)\downarrow \rightarrow T(\theta^*)\uparrow \rightarrow e = \text{exchange rate}$
stabilizes$\uparrow \rightarrow E(\theta^*)\uparrow \rightarrow M\uparrow \rightarrow$ ... SWF$\uparrow \rightarrow$ repeated by sustainability of the IS-OES complementarities referring to the episteme of unity of knowledge and the policies, instruments and preferences so evolved. $\uparrow$ denotes increase; $\downarrow$ denotes decrease; $\rightarrow$ denotes implication.   (10.2)

Because of the productive and socially guided nature of spending matching with the quantity of money in a progressively eroding interest regime, the rates of growth of quantity of money exceeds the rate of growth of prices, thereby causing a supply-side economics to emerge. From the Fisher version of the quantity theory we note that now that rate of growth of real money (M/p) equals the rate of growth of output. Consequently, the rate of growth of price level is zero. Inflationary pressure is arrested by the money-real economy social conditions of the equation of exchange. Such a relationship is thereby a harbinger of social and economic progress and economic stabilization in a general social equilibrium framework. Because of circular causation in the IIE processes the strict order of the money-real economy social relations may not be necessary even as these relations evolve and reinforce themselves.

Money-Real Economy Social Relations is Realized by the 100 Per Cent Reserve Requirement Monetary System with the Gold Standard

We define the 100 per cent reserve requirement monetary system in the light of the endogenous money-real economy social interrelations as both the 100 per cent mobilization of bank deposits in commercial banks into productive assets, goods and services in exchange and also the holding of 100 per cent of un-mobilized funds of depositors with the Central Bank. Consequently, the commercial bank has no scope to direct funds in interest-bearing savings and the return on money between the commercial bank and the real economy is perfectly shared between the depositors, the commercial bank and a diversified number of shareholders of the outlet into which funds are mobilized. Hence, the rate of return on money equals the rate of return on assets and exchangeables of the real economy in accordance with the effect of θ-values in the system of causal interrelationships.

The accumulated amount of excess funds after resource mobilization by the commercial banks is held at the central bank where it is supported by a stock of gold. But since such residual funds would be marginal in a vibrant money-real economy social interrelationship with r increasing along with socially productive spending, therefore, only a proportionate quantity of gold stock would be required to assign denomination to the currency held. But since two currencies cannot exist within the same economy, therefore the denomination of held funds in terms of the proportionate stock of gold would be applied to all the money in circulation in the real economy.

The seigniorage from the cost of production of a proportionate amount of gold to back up the residual un-mobilized funds forms a percentage charge on the residual reserve held with the central bank. The central bank collects this seigniorage from the commercial bank. The seigniorage revenue overwrites the cost of managing the funds by the commercial banks. The clientele is protected from devaluation of the currency value by its gold backing. In this way the clientele benefits in two ways. Firstly, he is a shareholder with a proportionate profit share of his mobilized funds into socially productive spending through commercial banks. Secondly, his un-mobilized funds are protected from devaluation by the gold backing. In both of these cases money now

becomes asset-backed money with the gold numeraire for valuation of the stock of money in circulation and held at the central bank. The commercial bank can at any time draw out of the accumulated reserves with the central bank to finance projects in tandem with the socially productive transformation of the real economy.

In the 100 per cent RRMS commercial banks lose their ability to affect multiple credit creation and thereby accumulate large volumes of interest payments from inter-bank lending and other lending. Money is thus created out of nothing in such fractional reserve requirement system to the benefit of large savers, banks and corporations (Shakespeare, 2003). Besides this, commercial banks can also borrow from their reserves with the central bank to generate new loans and thus earn profits from the interest spread between the prime rate and the commercial rate.

In the 100 per cent RRMS the absence of savings in liquid funds in commercial banks turns all inter-bank capital flows to be of the profit-sharing type in venture capital, trade financing and equity participation. Consequently, the quantity of money in circulation matches with the existing project and spending value. Speculation is avoided by such a matching formula and volatility as well as uncertainty is avoided by the stability of relative prices in complementary money, and financial and real goods and services. There can exist no incentive to save in liquidity in such a financial system. Indeed Keynes (1930) considered savings as a lure for money to be a withdrawal from productive economic activity when savings did not equal expected investment in the short run. The 100 per cent RRMS is thus a monetary system that by its systemic nature discourages savings and encourages and enhances resource mobilization. These are opposite activities between the financial and real sectors, respectively.[1]

Denominating Currency Value Backed by the Gold Standard

The central bank sets the value of the gold-backed currency by allocating a stock of gold, say G that is equivalent to the purchase of basic needs basket of goods, say X. Such basic needs are dynamic over time and learning in the IIE-processes governing IS-OES relationships. Thereby, $G = p.X$, value of spending in X at prices p (treat p.X as vector multiplication).

Next consider a quantity of money M being held at the central bank as residual holding that could not be mobilized but will be required later on by the commercial bank. Since M = p.X (vector multiplication), therefore, M = p.X = G. M is backed by gold to the extent of spending in X at prices p (vectors). Since the dynamic basic needs basket is invoked in this gold valuation of money, therefore, all money in circulation in the real economy is backed by the same gold standard. Thereby, prices are stabilized by gold backing in terms of money growth being measured by the rate of growth of output.[2]

The central bank is responsible for overseeing the health of the economy by consulting with commercial banks on the allocation of funds in socially productive directions and fixing the gold-backing for the quantity of money in the economy. Note that the base of gold and money valuation is the basic needs basket, which is a dynamic category because of the presence of θ-values in all such values according to the episteme of systemic unity of knowledge.

How much gold stock would be required to maintain the 100 per cent RRMS? A minimal amount, for $\Delta M = M1 - M2$; where M1 denotes the potential quantity of money in circulation if the commercial bank deposit was fully mobilized at a point in time. M2 denotes the actual quantity of money in circulation through the commercial bank. The actual case would be that a certain amount of foreign debt will exist and the central bank must create a quantity of money to liquidate this if otherwise the private sector is unable to fully securitize the debt by debt-equity swap.

Hence[2] $\Delta M = M1 - M2 = (G1 - G2)(1 + g) = \Delta G.(1 + g)$ That is, $\Delta M/\Delta G = (1 + g)$. This is equivalent to $(\Delta M/M)/(\Delta G/G) = (1 + g)$. That is the rate of elasticity of money with respect to gold remains in a steady state and is determined by the growth rate of the economy.

In the ideal case when full mobilization of resources takes place through the commercial bank, then too $\Delta M \neq 0$; consequently, $\Delta G \neq 0$. That is because a stock of gold-backed money must always remain with the central bank for purposes of valuation and supply on short notice as needed in case of excess

demand in a growing non-inflationary economy in the absence of interest rate and the presence of spending. Thus there is an inverse relationship between resource mobilization and the stock of gold. The function of the central bank is simply to oversee the health of the economy, maintain the gold standard and provide necessary guidance to the commercial bank and the development process.

The Open Economy Case

The gold standard as explained above is the universal standard for harmonizing the money-real economy social interrelationship. Now two cases would arise for the open economy. First let us assume that regional economies will continue their own currencies but all will be backed by gold by their own central bank or by a regional central bank as in the case of the EU. The second case is that of a common currency area with a common central bank with the gold standard. This is the case now being thought of by the GCC Common Currency Area.

In the first case like the EURO, the European Central Bank would stabilize the value of the EURO by the gold standard, while all other regional currencies linked to EURO will be valued against the EURO. The EURO is then like the SDR as a weighted average of the European basket of currencies backed by gold for reasons of economic stability and growth. In this case an amount of EURO is supported by a stock of gold that is allocated across the central banks of member countries.

In this case of a regional monetary union with currency retention by different countries the effective rate of exchange is given by relative currency value that is made in terms of the gold holding in the i, j countries. By our model of the central bank relations in gold holding we note that the gold holdings will be proportional to the residual quantity of money created by the central banks.[3]

Stability of Money, Price and Economy under the Gold Standard

In the case of a perfect common currency area, as is aspired for by the GCC region, it is obvious that $e_{ij} = 1$. This was also the arrangement under the fixed exchange rate regime under the gold standard in the Bretton Woods Institution arrangement prior to 1973. The result was a coterminous stability in gold prices, price level and money supply.

Figures 10.3-10.7 bring out this fact. The time trend regressions show that volatility in the currency markets and unstable prices level along with volatile price of gold started from 1973 onwards when the fixed exchange rate and the gold standard were abandoned in favor of flexible exchange rates and promissory paper currency numeraire.

The General Message from Figures 10.3-10.7 and the Estimated Equations

The estimation of the gold price trends, the money supply and CPI trends are done for the period 1913-2001 for the U.S. The general picture of these trends and interrelations between money supply, real money supply and gold prices movements over the period of observation point out a remarkable stability of the gold prices and CPI trends between 1913 and about 1965 when the Bretton Woods policy on pegged exchange rates along with the gold standard was abandoned. Thereafter, a highly volatile money and real economy relationship ensued. This kind of volatility has today become not only endemic for global financial and economic uncertainty but also the intrinsic problem of the fractional reserve requirement system with its paper money standard, abandoning the gold standard and the consequential pegged exchange rate regime.

Time Trends in Gold Price and Consumer Price Index

Pgold: gold prices U.S.A; CPI U.S.A: consumer price index in decimal form; t = time, 1913-2001
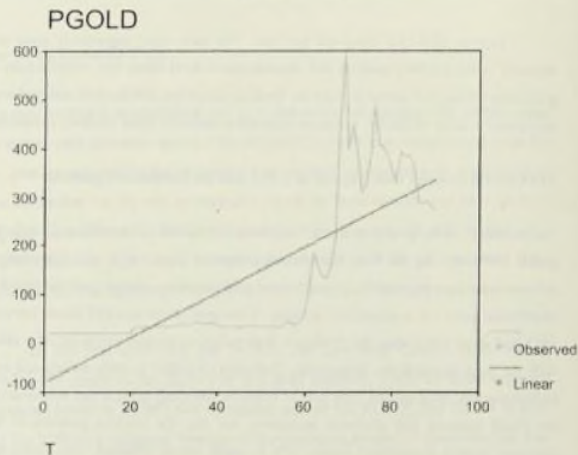
PGOLD

Figure 10.3: Long-Term Trend in Gold Prices: 1913-2001

Pgold = -80.840+4.630t.
      (-3.953)(11.834)
R Square: 0.6168
Durbin-Watson: 0.2193

CPI
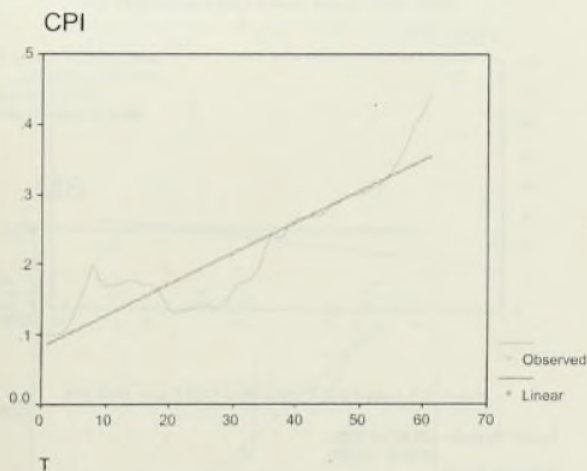
Figure 10.4: Long-Term Trend in Consumer Price Level: 1913-2001

CPI ratio= .008+. 004 t.
      (8.438) (16.155)
R Square: 0.8156
Durbin-Watson: 0.0735
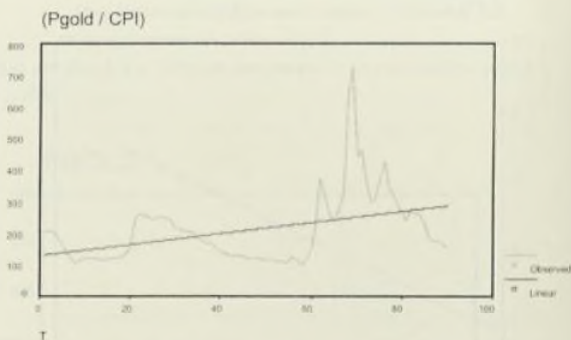
(Pgold / CPI)

Figure 10.5: Long-Term Trend in Real Gold Prices: 1913-2001

Pgold/CPI ratio= 129.927+1.735t.
                    (5.939)   (4.157)
R Square: 0.1673
Durbin-Watson: 0.3135

U.S. Nominal and Real Money Supply (1959-2001)

(MS)= -1087.139+170.174t.
        (-4.207)   (17.393)
R Square: 0.8755
Durbin-Watson: 0.5150
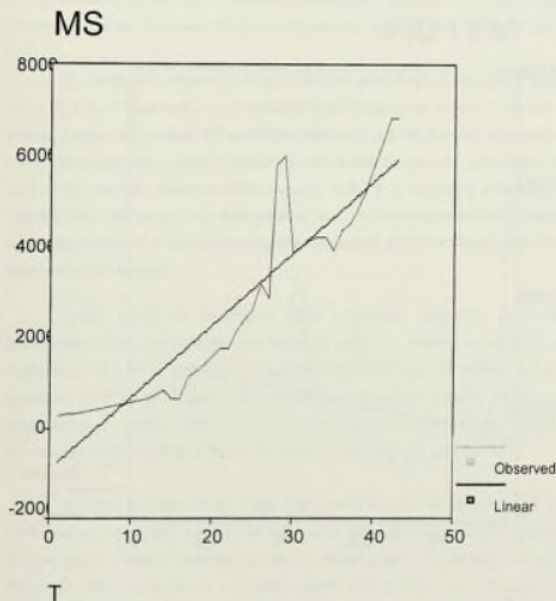
Figure 10.6: Money Supply (M3) (billions of dollars) over Time

MS/CPI= 7545.748+143.835t.
          (5.098)   (2.455)
R Square: 0.1281
Durbin-Watson: 0.4512
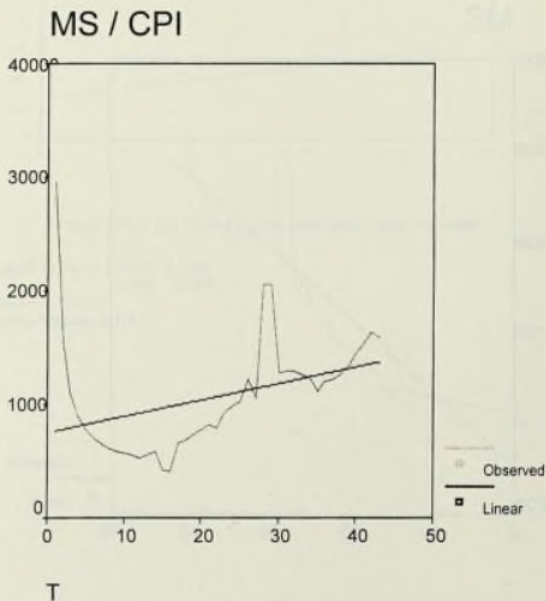
MS / CPI

Figure 10.7: U.S. Real Money Supply {(MS/ CPI)} (billions of dollars)
over Time t

The above estimation results point out the remarkable stability of both gold prices and inflation rate (CPI in decimal form) between 1913 and 1960. This is the point of time when the fixed exchange rate and the gold standard were abandoned at the Bretton Woods Arrangement. Subsequently, both inflation rate and consequently gold prices increased astronomically. Thus real gold prices became volatile. We therefore find that the R-square values and the Durbin Watson statistics do not infer linear fit and point to the existence of time-series problems, respectively even in these simple linear estimated equations. Non-linear relations are in order to carry out complex interrelations.

The relationship between gold prices and the price levels is empirically pointed out to be a fairly close one. In our epistemological language on complementarities and linkage, such a close relationship establishes gold to be a good standard for money and real economic stability. Monetary stability is caused both by the stable gold prices, with gold as the currency numeraire. Real economy stability is caused by price stability. Thereby, since gold supports the money-real economy relationship in our epistemological model, therefore such a model brings together the overall general economic equilibrium through the gold standard.

Central bank and commercial bank relationship respecting institutional management of the real economy and monetary sector by resource mobilization and maintenance of a given gold stock is intertwined with the over all stability that gold causes in price levels of goods and services, which money supports by the gold denomination to currency value. This is true in the international economy too because of the extension of global markets, all of which will be backed by the gold standard.

Estimated and actual money supply equation for the U.S. M3 between 1959 up to 1969 show a good stability, but becomes inflationary after that with price level increasing along with money supply. Consequently, the real money supply remains fairly stable post 1959 until 1985. The decline in real money supply near to 1959 is due to a restricted money supply following the monetarist doctrine in the face of high inflation rate that followed the collapse of the gold standard in the U.S. around the same time.

Institutional Implications of the Universal Harmonization of Money-Real Economy Linkage

The distinct link between money and real economy through the financial medium of resource allocation and the new form of institutional arrangement required between the central bank and the commercial bank in the light of monetary integration is not the kind of model one finds in the new financial architecture. In this regard we note here the models suggested by the International Monetary Fund and the Basle II. Accordingly, we have already noted that the EU monetary union is still a paper based monetary valuation system, upon which all the macroeconomic policies and real economy questions revolve.

The IMF looking for a new financial architecture continues on along the paradigm of the global paper currency numeraire. It has come to accept the present days' flexible exchange rates regime and the rule of markets to set such rates. Because of the predominance of market forces in setting exchange rates, interest rates and an active exercise of monetary policy to stabilize the financial volatility and external sector imbalances, macroeconomic coordination has become difficult as a global policy rule (Tlaga, 2000). The policy rules regarding transparency, disclosure and global market driven capitalistic norms are exogenous policy measures. Consequently, social functions of economic and financial policies, such as distribution, employment and poverty alleviation as some examples, are not within the purview of such policies at the IMF. The World Bank is made responsible to attend to such socio-economic goals. Thus the World Bank and the IMF are in pursuit of two disengaged, that is, exogenous, policy rules and goals. Economic theory, which is predominantly neoclassical in essence in the national boardrooms with monetarism at the centre of monetary theory in the national central banks, remains in concert with the unbridled prevalence or exogenous governance of market forces for monetary stability (Desai, 1989). In the end the new financial architecture by the IMF simply means a set of rules on financial governance and the exercise of market-friendly policies to operate with a globally export-orientation and the growth paradigm (IMF 1995).

The target of regulating the banking sector to sustain its financial efficiency is at the heart of the Basle II Capital Adequacy Accord (2003). Basle II recommends a

minimum capital adequacy requirement to central banks in the hope of engaging mobilization of financial resource into the private sector and thus let market forces perform the efficiency function. While this is also a recommendation of our money-real economy linkage, still the difference is on Basle II neutrality of commercial banks and microenterprises in participating to determine the capital requirement base. The central assigns the capital adequacy accord with its prescription of minimum capital requirement. This is the top-down as opposed to bottom-up approach in the Basle II capital accord approach. The participatory nature of central bank, commercial and real economy agencies of our prescribed model is absent in Basle II despite that Basle II has had discussion sessions with industry at the higher echelons of the economy.

When we combine the IMF with Basle II on the matter of a new global financial architecture we note that the future would be no different than the present in terms of financial volatility and uncertainty. The exchange rate and relative prices of financial substitutes will remain volatile and uncertain in the face of market forces relenting on the valuation of currency by the promissory paper standard. Gold that is not stocked by central banks under a regulatory control internationally set, let us say by the International Bank of Settlements will be acquired by private hedgers against currencies. Thereby, global currency wars will drive up the exchange rates and price of gold for those countries that acquire more of it without a distributive control on gold allocation across global central banks. The price of gold has increased astronomically since the end of Bretton Woods Institution arrangement of fixed exchange rate regime in 1973 and continues on to soar today because of such private and unequal gold holdings (Van Eeden, Jan. 2002).

We note from our earlier arguments that for reasons of the money-real economy social relations, gold is a pseudo private good. Its distribution across central banks regionally and globally is important to stem the tide of currency speculation and gold-currency swap. In this sense is both a social commodity and performs a social function along lines of economic stabilization and equitable real income distribution. While it might appear that a low gold stock holding in the central bank as prescribed in our model of money-real economy social relationship could lower the currency values, yet the convergence to such a universal harmonization by the gold standard will drive the

exchange rate to near unity and stable levels. Thus it is the distribution principle of the total global stock of gold that will be instrumental in stabilizing exchange rates and by circular causation also relative prices of goods. Goods traded in markets are dynamically complementary in nature instead of being substitutes. That is because product and risk diversification in the real economy markets require simultaneous development on all fronts both by market forces, technological diffusion and effective dissemination of knowledge generated in the IIE-process of market and polity relationships. The idea of complementarities between goods and resource means that the expansion of knowledge, information and technological change must simultaneously affect production and spending, although the differential allocation between these goods, factors and resources can vary.

Such a principle of pervasively complementary resource allocation is quite contrary to the economic dynamics of common currency areas. The opportunity costs of monetary integration in terms of opportunities foregone are borne by the more productive country to accommodate a less productive member. Such costs could be foregone exports, lack of complementarities in production and primary resources, factor costs according to differential levels of factor productivity causing unemployment and wage disparities and misalignment of inter-country inflationary rates (Grauwe, 1997). The methodology of opportunity costs is continued in the framework of common markets in so far as the regime of paper currency causes inflationary pressure and volatile interest rate-exchange rate mechanism for external sector stabilization.

In the regime of pervasive resource complementarities the social and economic dynamics change from the optimization marginalist methods to simulation models of continuous learning. This is the function of the knowledge-flows θ that we examined earlier. The strength of economic stabilization for the social good now rests on an extensively participatory economy. Money and real economy social relations perform a critical role in generating and sustaining participatory linkages across the general equilibrium framework.

The policies for stimulating the economy by complementary actions are the following: (i) The participation by networking and linkages across agents, projects and sectors would lead to the development of microeconomic basis of macroeconomic policies by the central bank and the commercial banks working jointly. (ii) The central bank is in charge of the functions of overseeing the growth, stabilization, risk, production diversification and social forces of economic consequences. (iii) The central bank governs a proper stock of gold to back up money and valuation of assets in the real economy. (iv) The central bank and commercial banks together coordinate policies and actions to expand markets by international trade and progression into linked markets, thus ultimately leading to the establishment of a common market in the optimal common currency area. (v) The central bank together with commercial banks expand human resource training centers to disseminate information flow and awareness for public at large on the modus operandi of a knowledge-centered social and economic system operating in the framework of unity of knowledge as earlier explained in the epistemological sense and applied to the money-real economy social interrelations.

What would be the nature of monetary, fiscal and trade policies in the regime of complementary resource allocation?

Because of the microeconomic nature of projects by sectors and social relevance, money assumes a micro-function. We call such allocated money pursuing financial needs of projects as micro-money (Choudhury, 2004).[4] Therefore monetary policy based on micro-money means that the central bank and commercial banks coordinate expenditure policies and setting of gold stocks for supporting the money in circulation in the real economy. The issue of economic stabilization in such a system was discussed earlier. The driving instrument of micro-monetary policy is the rate of return (r) in a regime of declining interest rates (i). We denoted this instrument earlier by (r/i).

In the case of fiscal policy, the microeconomic nature of economic aggregation and an automatic stabilization of the economy between real sector demand and micro-money creation with the gold backing in inverse proportionality will reduce the effectiveness of fiscal policy except for social expenditure. Here the principle of complementarities between micro-monetary policy and residual fiscal policy will reduce

interest rates and consequently increase interest rate. This will cause (r/i) to increase in a participatory economy. The social function of economic change is thus endogenously transferred to the market friendly process (Choudhury, 1997). Now both micro-monetary and fiscal policies are marginalized. Hence the cost of government expenditure and of the central bank is automatically stabilized and a balanced budget emerges. The financial resource saving can now be directed to information generation and overseeing of socio-economic functions. The important policy function is reverted to creating of knowledge and overseeing and guidance of the national economy. Such a policy direction is in accord with moral suasion exerted by the central bank on commercial banks for an accord on economic stabilization in reference to monetary effect for the common good (Boreham & Bodkin, 1988). The difference though in the gold-backed monetary arrangement is that there is a binding and thus legal agreement between the central bank and the commercial bank on moral suasion relating to the function of banking participation, resource mobilization and its relationship with gold holding at the central bank. Through the commercial bank statutory obligation on the moral suasion policy the rest of the economic functions are integrated in the moral suasion dynamics.

A Single Global Currency

Lastly, we come to the issue of a single global currency and what it means in the context of the gold standard. Professor Robert Mundell (Nov. 8, 2000) has proposed three approaches to establishing a single global currency as the optimal currency. Firstly, he advocates for the return to gold as the currency standard (anchor). He points out that the return to the gold standard will generate stability of price level and a return to fixed exchange rate that will also stabilize external sector balances and internal sector fiscal policy for creating growth and employment, given of course perfect labour mobility between regions. To realize such results, gold would have to be stable in value. This would be the responsibility of a super-encompassing agency making sure that the relationship between gold and commodity prices was a stable one. In this regard Figure 10.3 points out that indeed the real gold prices were fairly stable prior to the abandonment of the fixed exchange rate regime (gold standard) and became volatile at once as the flexible exchange rate policy was introduced.

Professor Mundell goes on to suggest the second approach to conversion to a single global currency. Choose a given currency basket, say the SDR; index it for inflation and make such an indexed SDR as the anchor of a single global currency. The problem as we see it would be a strict requirement for uniform monetary and macroeconomic policy coordination between the countries whose currencies are chosen in the basket and then for all other countries to do the same with respect to the anchor currency. This appears to be similar to the advocacy for a common Keynesian full-employment target of output and prices on a global scale governed by the Bretton Woods Institutions. The idea did not work out, as productivity levels of different countries are so disparate in their levels and structure that such a full-employment policy is impossible to be pursued by a global organization (Worswick, 1989).

The third possibility suggested by Professor Mundell is to select three important currencies belonging to three large currency areas, say the U.S.Dollar, EURO and Yen. The suggestion is that if these currencies can rally together with good deal of monetary and macroeconomic policy coordination between them, then other currency areas that are close to these three major currencies or currency areas will eventually join the three common currency area to form one optimal currency. Rogoff (undated) advocates for a less than optimal currency area among the big three. According to him a flexible exchange rate, financial innovation and existing monetary and open-economy macroeconomic coordination are necessary for an optimal currency area.

In either of the last two cases suggested for a single global currency there is the real political sensitivity that nations with different political demands and financial arrangements will resist such overarching control by policies based on monetary and macroeconomic coordination that might appear to be inimical to their interests. Even in the case of a near harmonization of their currencies with the emerging common currency area the internal financial and goods markets of such other countries will be distorted by the existence of contrary financial arrangements and innovations. An important example in this regard is the growing number of Islamic banks within Muslim countries whose objectives being to transform the economies incrementally into Islamic economies will work against the interest-driven monetary and macroeconomic coordination policies under the single global currency regime. Even if such Muslim Governments were to join

the single global currency area the increasing importance of Islamic banks in these economies will distort the financial and goods producing economies by segmentation between interest-bearing and interest-avoiding financial and productive transformations.

The first of Professor Mundell's suggestion as a possibility to return to the gold standard as the anchor of all currencies despite the different currencies that countries may continue on to hold appears to pose the best alternative in the light of the epistemological context of our money-real economy causal interrelationships. The costs of adjustment to the gold standard and to the economic and financial changes are not only low but also not positively overwritten by the expected gains. The evidence of stable prices and money supply conditions points to the substantive stability expected under the gold standard with an endogenously generated convergence to fixed exchange rate.

Complementarities between the real economy (production and spending), money and open-economy generalization of exchange rate stability, all point to the gains in financial stability and terms of trade of all countries with their own areas of commodity, production and factor endowment specializations. Above all, it is noted from our epistemological money-real economy knowledge-induced complementary methodology that a small amount of gold suffices to support a great deal of real economy transactions in the changed institutional and policy relationship between the central bank and commercial banks. The transformation to a global adoption of such a model would of course require a super-encompassing monetary authority to allocate the gold stock to member countries, and thereby, further accommodate the participation and learning for sustaining the money-real economy causal interrelationships by continuous discourse and learning.

The cogent set of policy instruments to transform to the gold standard backing the money-real economy interrelationship in our proposed system would be those that would run down or replace the interest-based monetary and development polices. This is an endogenous consequence of the money-real economy causal interrelationships in the micro-money version of the quantity theory of money, as pointed out earlier.

Conclusion

The demand for global stability in financial and productive sectors requires a fresh look of the relationship between money and the real economy. In the terminology of the global optimal currency area such a causal interrelationship requires a return to the anchor of gold to support real economy relationship. In this the function of central banks is reduced to supervision of the macroeconomic health and microeconomic relationships on projects that are financed by resource mobilization through the commercial banks. Thereby the predominance of endogenous relations at the economy, market, global and institutional levels reduce the transaction costs of the change to an allocatively determined gold standard by a global monetary authority, the central banks of member countries and the member commercial banks in concert with the economy at large. This is the social relationship of the money-real economy linkage, which causes further integrated effects on factor mobilization, innovation, participatory economic change and fair distribution. All these are a reign on global capitalism and the globalization process that do not bring about social dividends to many. Money instead is a social contravention as well as being an economic one.

Many of the implications of the single global currency regime are found to exist in the gold-backed money-real economy linkage, such as convergence to fixed exchange rate and thereby global real economic stability along with the attenuating price stability. The strength of our model system rests on the productive transformation of the economy with money supporting this transformation as an artifact of the money-real economy linkage through the financial sector and by the use of appropriate policy instruments. The stock of gold with the global monetary authority and in the central banks are meant to support a stock of debt outstanding and a reserve that comes by way of holding un-mobilized funds through the commercial banks in the attenuating 100 per cent reserve requirement monetary system.

Some of the kinds of policy instruments that the money-real economy gold-backed 100 per cent reserve requirement monetary system will use are as follows:

1. Continuous discourse that is policy participatory for learning and guidance by institutional arrangement in the ever-spanning tripartite interrelationship involving the central bank, the commercial banks and the real economy.

2. Participatory instruments such as profit-sharing, equity participation, trade financing, joint ventures, cofinancing and other cooperative forms that help to (a) select socially and economically useful projects; (b) mobilize resources between the financial and real sectors.

3. Extension of the money-real economy complementary concept across the economy at large by means of the micro-money perspective and thus causing participatory dynamics to pervade all of the economy.

4. The continuous monitoring of a social and economic objective in the tripartite relationship mentioned in (1), thus reflecting the general social and economic equilibrium.

5. Immediately launching the academic and policy-oriented learning along lines of the epistemological nature of the money-real economy gold-backed 100 per cent reserve requirement monetary system and familiarizing the political echelons along lines of this kind of global monetary transformation.

Notes

1.

	$t = 0$	$t = 1$	$t = 2$	$t = n$
Output	Q_0	$Q_1 = Q_0(1-s)(1+i)$	$Q_2 = Q_0(1-s)^2(1+i)^2$	$Q_n = Q_0(1-s)^n(1+i)^n$

Returns on

Savings s denotes the constant savings rate

Savings	$Q_0(1-s)$	$Q_1(1-s) = Q_0(1-s)^2(1+i)$		$Q_n = Q_0(1-s)^n(1+i)^{n-1}$
Output	Q_0	$Q_1' = Q_0(1+r)$	$Q_2' = Q_0(1+r)^2$	$Q_n' = Q_0(1+r)^n$

Returns on
Spending

If all of savings is mobilized into spending at any given point of time then the above two results will be the same. There is no savings deduction in the latter case because resource mobilization at any point of time enters the GDP accounting and forms aggregate output.

Now consider the following results:

At $t = n$,

$Q_n' > Q_n$, because of the withdrawal by way of savings, provided,

$(1+r)^{n-1} > (1-s)^n(1+i)^{n-1}$

That is, $1 + r > (1-s)^{n/(n-1)}(1+i)$

Or, $1 + r > 1 - s + r$, to a linear approximation;

Or, $r > i - s$. This is the leverage of rate of return over the net interest rate after savings, proving that savings, which depends upon interest rate, is always a withdrawal irrespective of the accumulation of funds over time.

2. $\Delta M = p.X = \Delta G$, Δ and thereby ΔG denote the residual money and its gold-backing required following resource mobilization through commercial banks. This relation can be re-written as, $\Delta M = \Sigma p_i.X_i = \Delta G$ by taking individual prices of the corresponding goods. The same relation can be written as,

$$\Delta M = [\Sigma p_i.X_i/\Sigma p_{i0}.X_{i0}].[\Sigma p_{i0}.X_{i0}] = \Delta G,$$

$\Sigma p_{i0}.X_{i0}$ denotes base year spending in the basic needs basket; $[\Sigma p_i.X_i/\Sigma p_{i0}.X_{i0}] = CPI$ in a given year in reference to the base year.

$$\Delta M/CPI = (p_0.X_0) = \Delta G_0; \text{ or, } CPI = \Delta M/\Delta G_0 = [\Delta M_0/\Delta G_0](1 + g),$$

because ΔM_0 is determined according to the rate of growth of output, g, in the money-real economy social relationship.

Thus, CPI changes proportionately to the rate of change in productivity. There cannot be inflationary pressure in such a case, a point that was pointed out earlier as well.

3. $EU = G = \Sigma_R G_i = \Sigma_R(g_i, C_i)$, where g_i a unit of gold required to support the value of currency C_i in country 'i' of the region R. G is thus allocated across the member central banks.

We define the regional exchange rate e_{ij} between countries i and j by,

$$e_{ij} = C_i/C_j = \beta_{ij}(G_i/G_j),$$

where $\beta_{ij} = g_i/g_j$ and depends upon the currency denomination made by the i, j countries central banks.

4. Definition of micro-money involves the following deconstruction of the equation of exchange in quantity theory of money:

$$\Sigma_i M_i V_i = \Sigma_i P_i y_i .$$

P_i denotes price in the ith market;
y_i denotes per capita income in the ith market;
$i = 1, 2, ..., n.$

The above expression reduces to, $M_i V_i = P_i y_i$ as an identity, for each $i = 1, 2, ..., n$

Thereby, $\qquad M_i V_i / P_i y_i = M_i V_j / P_j y_j.$

That is, $\qquad M_i V_i / M_j V_j = P_i y_i / P_j y_j = (P_i/P_j)(y_i/y_j),$ for i ,j $= 1, 2, ..., n.$

These expressions imply that for the total volume of micro-money in financing the nominal value of transactions in the ith market, relative prices in money terms between the markets must remain stable and the markets must be in equilibrium. This result requires well determination of the agent-specific preferences as in the case of the 'real bills' hypothesis or the 100 per cent RRMS backed by the gold standard.

QUESTIONS IN ISLAMIC ECONOMIC
AND FINANCIAL ANALYSIS

PART 1

1. A financial firm is a Shura in the light of the IIE or Shuratic Process methodology of expression (2.1) in Chapter 2.

   (1.1) Explain this statement with respect to the simulation problem of the firm's profit-function.
   (1.2) Specify the profit function of the firm in the light of the attributes of expression (1.1), first within one process P1, secondly across multiple processes {P1, P2, .., Pn}.

2. (2.1) Generalize (1.1) and (1.2) for several firms in a multimarket case.
   (2.2) Now use the above expressions to explain how interactions occur between such participatory firms in the venue of complementary relations relating to (1) joint strategy on the production function (inputs and outputs) and (2) market pricing (as opposed to collusive pricing of an oligopoly)

3. Set up the social wellbeing function for profit-function in the case of

   (3.1) one firm in question (1);
   (3.2) multiple firms in question (2).

4. An Islamic firm, such as an Islamic bank, looks after its shareholders' protection of wealth as well as undertakes socially meaningful projects. How are these dual objectives realized in the participatory and dynamic objective of questions (2)-(3) as explained by a generalized social wellbeing function?

   (4.1) Draw a diagram to bring out the interaction, integration and evolutionary processes of unity of knowledge.
   (4.2) Assign symbolic variables to show how the IIE process works in (4.1)

5. The simulation problem associated with the expression in questions (1) - (3) takes the form of simulating the social wellbeing function subject to a multiple system of equations. Set up a generalized system of such a multiple system simulation problem keeping in view the circular causation model of unified reality of Tawhid that guides all processes.

6. The simulation problem of question (5) can be estimated by means of simultaneous systems model with learning coefficients. Say that the following two domains of simulated solutions and social wellbeing values, respectively, are attained.

(6.1) What is the equilibrium result in this case?
(6.2) Will such an equilibrium point be in a steady state? Explain your answer by means of a diagram.

θ-values	1	2	3 ...	10 ....
Quantity 1 (16)....	10	12	14 (10)...	28
Quantity 2 (15)....	12	14 (10)	16 (12)	30
Price 1	5	6	7 (5)	14 (8)....
Price 2	4	5 (6)	6 (8)	13 (10)
Joint Profit-Function as 100 .... Wellbeing Function		110 (100)	120 (110)	190 (120) ....

PART 2

7. (7.1) The simulation perspective of question 6 in Part 1 implies that there is no unique and steady state equilibrium point in the knowledge-induced domain. Yet integration leads toward a convergence, which yields an expected and evolutionary equilibrium point. Using this perspective, draw a diagram using the understanding of cobweb model and shifting demand and supply curves to show that only evolutionary equilibrium points can exist in Islamic market exchange.

   (7.2) Using the one firm example of question 6 draw approximate forms of the supply curves in knowledge-induced quantity and price variables show how evolutionary equilibrium points can be shown in the multimarket case. Explain your determination of such evolutionary equilibrium points.

8. An Islamic bank can be considered as a shareholding company that guides the shareholders resources into the proper channels to make stable profits and costs and share such profits and costs mutually according to the tenets of the Shari'ah, Islamic Law. In this perspective take back the example of question 6 and explain,

(8.1) How profit sharing is done between the two firms.

(8.2) How profit sharing would be done between the firms and the shareholders.

9. An Islamic firm manages to stabilize risk and return by diversifying the portfolio of projects and generating shareholders' participation with managers to make collective decisions on portfolio choices and project evaluation.

(9.1) How is this risk-return behavior in uncertain markets different from the risk-aversion behavior of financial theory?

(9.2) Take the following two sets and show how the risk-return relation will look like in the case of Islamic portfolio analysis and mainstream portfolio analysis:

Number of shareholders	100	130	140	150
Variance of returns	200	250	260	300
Expected returns	500	550	600	700
Intensity of participation	1	2	3	5
As indicated by θ-values				

10. Risk and cost diversification generate complementarities with product diversification in the Islamic economy.

(10.1) Show how the average cost curve reacts to such complementary kinds of diversification effects.

(10.2) Construct two such shifting average cost curves by assuming appropriate values for cost and output. Then draw the path of net evolution of average cost between the two underlying technologies. Take $0 < \theta \le 1$ for technology 1; $1 < \theta \le 2$ for technology 2.

11. Attaining the appropriate form of diversifications as mentioned in question 4 has a close relationship with project identification in the light of the Shari'ah. In the light of the participatory nature of the Islamic economy such projects are joint projects.

(11.1) By means of a diagram show how such joint projects are interactive across processes.

(11.2) By taking product function of costs and outputs and hence profits, show that unit cost is lower in the case of joint ventures with participatory linkages between the processes of projects than ventures that are individually profit-maximizing as in mainstream economics.

12. The predominantly micro-basis of the Islamic economy can be found
    in the nature of policy formulations and the models underlying this.
    One example of this is the way that Zakat is treated in the model of
    income and wealth distribution. We take the stance that Zakat is
    specific expenditure that is differentiated by its eight categories. Hence
    Zakat cannot be treated as any expenditure variable in the usual
    Keynesian general equilibrium relations. Besides, if Zakat is so
    differentiated by its expenditure category, then the incomes of that
    category is also to be differentiated. Likewise, the other spending
    categories in that group of Zakat recipient must be separately
    considered. Over all these is the governing preference formation that
    instills the outlay of Zakat among all categories of Zakat payers. We
    therefore define the sector or category where Zakat is specifically
    directed by the set A_i, $i = 1,2,...m$ as, $A_i = \{n_i, Y_i, Z_i, \leq_i\}[\theta]$, meaning
    that in this set knowledge variable as formed by the IIE process
    (Shuratic Process) influences all the variables, n_i, the number of Zakat
    recipients in the ith category; Y_i as the total of wealth and income, Z_i
    as the amount of Zakat and $\leq_i$ as the preference deepening to pay
    Zakat in the ith category or sector where Zakat is allayed. The
    subscript i could also be treated as regions and nations in the case of an
    international flow of Zakat across the Muslim world.

13.   Convert the following set of equations into an income multiplier with
        respect to spending in the ith group. Then show that neither a lateral
        aggregation nor macroeconomic type aggregation by population
        sampling or estimation of the total group-specific expenditure is
        possible.

    (13.1) $Y_i = C_i + Sp_i + Z_i$
            $C_i = a_i + b_i Y_i$
            $Sp_i = c_i + d_i Y_i$
            $Z_i = z.(Y_i - C_i - Sp_i)$
            C_i denotes consumption expenditure in the ith sector;
            Sp_i denotes other forms of spending in the ith sector;
            $z = 2.5\%$, the Zakat rate on net income.
    (13.2) The equation for M1 quantity of money in terms of Zakat is
            estimated to be,

            The equation for spending in terms of Zakat is estimated to be,

            Also in the Islamic economy money is simply the sum of spending
            in the real sector in accordance with Shari'ah rules on social rules
            governing transactions and instruments.

Write down the reduced form of the equation relating Zakat to the other variables.

What are the implications of the elasticity of Zakat to the other variables as shown?

14. From the formalization of the social wellbeing function in Part 1 it is known that the variables of this function are related by a circular causation system of derived equations in view of the IIE process being now applied to iteration of the variables over phases or processes. Let the social wellbeing function be,

$$W(\theta) = W(y_1, y_2, Z_1, Z_2)[\theta]$$

Y_i denotes the real income variable; Z_i denotes Zakat variable. Each of the variables is influenced by θ. $i = 1,2$.

(14.1) Write down the derived equations and give a theoretical meaning for these derived relations in the economic problem of simulating the wellbeing function.

(14.2) Note that no form of aggregation is now possible other than applying the multi-system IIE relationship in TSR given by expressions (2)-(4) in Part 1. The product form of the social wellbeing function can be one such interrelationship between the variables, given elasticity of the social wellbeing with respect to the variables shown. Let such a product form be,

$$W(\theta) = y_1^a \cdot y_2^b \cdot Z_1^c \cdot Z_2^d,$$
Total Zakat, $Z = Z_1 + Z_2$; total income $y = y_1 + y_2$

each variable and the elasticity coefficients, a, b, c, d are functions of θ-variable. Let 1 stand for firms; 2 stand for household. Let θ-value change at a steady rate. Consequently, $W(\theta)$ and the other variables would change at a steady rate.
Establish an expression for steady state trend in the rates of growth of the variables in the above expression. Graph the y-z trend in relation to θ-values.

15.   Extend the income-spending multiplier relation in question (7.1) by including Mudarabah (profit-sharing) and Musharakah (equity participation). In this case the spending variable other than consumption and Zakat is denoted by,

(15.1) $Sp_1 = m_1.(Y_1 - C_1)$; $Sp_2 = m_2.(Y_2 - C_2)$,

m_1 and m_2 are the portions of the net incomes after consumption mobilized into Mudarabah and Musharakah, respectively.

Explain the relationship between income and spending with respect to the evolution of θ-values in the income-spending multiplier with Mudarabah and Musharakah? One can note here the importance of variable Mudarabah and Musharakah contracts within the IIE or Shuratic Processes governing these matters.

(15.2) Given, $0 < m_1 < 20\%$; $0 < m_2 < 50\%$, explain the nature of equilibrium in the θ-induced income-spending multiplier in Mudarabah and Musharakah.

16. The concept of aggregate savings in macroeconomic is replaced by that of resource mobilization as in the case of Mudarabah and Musharakah. These are known to be θ-driven and thus institutionally sensitive to the IIE or Shuratic Process. Consequently, the concepts of IS and LM curves of macroeconomic general equilibrium system become irrelevant in Islamic economics. Consequently, only microeconomic relations are relevant in policy formulation.

(16.1) How is fiscal policy established in this case in terms of spending and

Zakat variables? Note that we need to resort to the TSR expressions of questions (2)-(4) in Part 1 and use the derived relations of the social wellbeing simulation problem.

(16.2) How is monetary policy attuned to fiscal policy with spending = quantity of money? Once again we need to resort to the evolutionary equilibrium aspects of the simulation problem of social wellbeing vis-à-vis the TSR.

PART 3

17. (17.1) Establish the equivalence between the following two expressions:

Discounted Present Value of Utility = $U(0) = \int_0^\infty U(t)e^{-\delta \cdot t}dt$

Present Value of a stream of cash-flows, $y = P(0) = \sum_{t=0}^\infty [y/(1+\delta)^t]$

Thus prove that δ, which is the time value of money as a discount rate is the same as the marginal time preference rate in utility discounting rate.

(17.2) In the general case of $y = E[y(t)] = \sum_c$ Probability$(y(t))_c. y(t)_c$;

as for $U = E[U(t)] = \sum_c$ Probability$(U(t))_c. U(t)_c$, δ measures the opportunity cost of delaying receipt of a cash flow or utility, and is a function of the risk with which the expected value occurs. But since the future contingency cannot be known except for the short-

term near the occurrence of the contingency and the real market transaction, therefore, δ cannot be known over time. Hence assigning a value to the discount rate to value an asset is Riba.

Therefore, prove the Islamic unacceptability of the risk-return capitalization of a project by means of the formula:

18.   In the general case mentioned in question (1.2) there are multiple values of δ and hence multiple internal rates of returns, all of which could make a project viable when compared with the market rate of interest. Yet the difference between the internal rates of return and the market rate of interest cannot be the same for all such IRR. Effectively, if we are to associate such multiple IRR values with mutually exclusive projects then there would be independent present values.

(18.1)   Prove the above facts for the following present value formula from which the IRR values can be computed:

$P(0) = \Sigma_0^2 \, y(0).[(1+g)/(1+\delta)]^t$
g is the annual rate of growth of $y(0)$.

(18.2)   If g is the dividend payout rate in question (2.1) prove that $\delta > g$ in order for $P(0)$ to exist. Since δ is equivalent to interest rate, explain the effect of $P(t)$ in the social wellbeing function with respect to income and spending.

(18.3)   Is it then reasonable to have the problem for asset valuation in the social sense?
Max. $W = A.y(t)$
Subject to, $P(0) = \Sigma_0^2 \, y(t)/(1+\delta)]^t$
Interpret the relationship between the time change in $y(t)$ and δ.

PART 4

19. Refer to the Annual Reports of the Islamic Development Bank to deduce from them the kinds of Islamic development financing instruments that are being used to mobilize financial resources across sectors of the membership economies.

(19.1)   Do you find complementarities between these development financing
instruments and the sectoral allocation of financial resources? Or is the allocation by and large ad hoc without a conscious undertaking on such complementarities?

(19.2) What could you suggest to the IDB in terms of improving the linkages between member countries by way of trade and development through linkages between sectors and development financing instruments?

20. How can a Forward Overlapping Generation (FOG) model of project evaluation be used in the light of the institutional, social and economic perspectives of development of this FOG model with respect to the systems perspective?

21. What policy alternatives can be developed respecting the use of Islamic financing instruments in bringing about the systemic relations between money, finance and the real economy?

22. Develop the answer to Question (21) in the framework of a general equilibrium approach using the following variables and their interrelations:

(22.1) Abolition of Riba, development of trade, instruments of Mudarabah,
(22.2) Musharakah and Murabaha, resource mobilization and social wellbeing.
(22.3) How can the Islamic financing institutions be linked with the Central Bank,
the Ministry of Planning and National Economy and the Islamic Development Bank to bring about the kind of complementary relationship suggested in questions (1)-(3).

PART 5

23. Draw the systems chart showing the relationship between the central bank and the commercial bank in a conventional economy.

(23.1) By means of this diagram explain the meaning of bonds, shares, stocks, secondary financing instruments and liquidity. Write down and explain the general relationships between these.
(23.2) What is the effect of interest rates and exchange rates on the models interrelating the above variables? Show b means of diagrams.

24. Answer all parts of Question (23) all over again by changing the monetary and financial relationship with bonds, shares, stocks and liquidity in the case of Islamic financial intermediaries.

25. Consider the following functions of an Islamic bank and show how they can promote microenterprise development:

    (i)   Human resource development
    (ii)   Social wellbeing of the grassroots level of society in terms of their productive transformation
    (iii)   Sustainable development
    (iv)   Participatory institutions
    (v)   Appropriate financing instruments to replace the interest-based aspects of resource mobilization.
    (25.1) Put Question (25) in the form of a systems diagram reflecting the TSR model

26. (26.1) How does an Islamic insurance scheme work? Set up a Balance Sheet of a Takaful and a Re-Takaful.
    (26.2) Use the principle of Islamic insurance to explain how Takaful plays a central role in interlinking the monetary, financial and real sectors.
    (26.3) Use a computer systems design and simulation approach to show how the money-real economy complement is established by the intermediation of Takaful and Re-Takaful.

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MELLEN STUDIES IN ECONOMICS

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